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JOURNAL  
OF THE  
ASIATIC SOCIETY  
OF  
BENGAL.

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EDITED BY  
THE SECRETARY AND SUB-SECRETARY.

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VOL. XII.  
PART II.—JULY TO DECEMBER, 1843.  
NEW SERIES.

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"It will flourish, if naturalists, chemists, antiquaries, philologers, and men of science, in different parts of *Asia* will commit their observations to writing, and send them to the Asiatic Society, in Calcutta; it will languish, if such communications shall be long intermitted; and will die away if they shall entirely cease."—SIR WM. JONES.

CALCUTTA :  
BISHOP'S COLLEGE PRESS.  
1843.





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JOURNAL  
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*As-Soyúti's work on Earthquakes, called كشف الصلصلة عن وصف الزلزلة المسميوطي Kashf as-Salsalah 'an wasf Az-zal-zalah, i. e. removing the noise from the description of the Earthquakes, (or clearing up the description of Earthquakes.) Translated from the Arabic by A. SPRENGER, Esq. B. M. S.*

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Jelal-ed-din as-Soyúti, an Egyptian polygrapher of some merit, died in A. H. 911. He wrote this work on the occasion of an earthquake in Egypt, with a view of showing to his countrymen by a number of traditions which have been omitted in this translation, that earthquakes are ordained by God to punish men for their sins. At the same time the author wished to console them by showing them from history, that much more frightful punishments of this kind had taken place than the one under which they suffered in his time. This translation has been made from an Arabic MS. of the Royal Library at Paris, (fonds Asselin N. 218) which is neither very correct nor legible. A better copy is preserved in the library at Gotha. This translation, was not made with the view that it should ever be published, but it was merely intended as a sort of a hasty memorandum for the translator, it will therefore probably not stand the criticism of the philologist, though the student of Natural Philosophy may rely, that the facts are in general correctly rendered into English.—A. S.

It would appear that this is the original of the Persian work known amongst the native literati of the Western Provinces, by the name of 'Zelzle Namah,' for which enquiry was made sometime ago by Lieut. Baird Smith. See Proceedings of Nov. 1842, Vol. xi, p. 1201. Upon our mentioning it to Dr. Sprenger, he expressed this opinion, and has been kind enough to place this curious little Treatise at our disposal for the Journal.—EDS.

A. H. 94. On the 20th of Adar (March) an earthquake in Syria, which lasted forty days. Many buildings were destroyed in Antiochia.

98. Again for forty days, during the Khalifat of Omar Ben Abdulaziz, in Syria.

130. There was an earthquake at Damascus, which was so violent, that the people were obliged to leave the town.

131. Several new shocks in Damascus.

180. In Egypt a very violent earthquake. The minaret of Alexandria was destroyed.

187. At Masisa *المصيصة* an earthquake and an inundation.

203. In Khorasan an earthquake which lasted seventy days; the mosque of Balkh and the fourth part of the town were destroyed.

219. Great darkness from noon until the evening.

220. Antiochia was destroyed by an earthquake, which lasted forty days.

224. An earthquake at Fergana, by which 15,000 persons perished.

225. An earthquake at Ahwaz for sixteen days; it was also felt in Jebal.

233. At Damascus many persons were buried under their houses; the earthquake extended to Antiochia, Mesopotamia, and Mausil. It is supposed that 50,000 persons perished.

232. Several earthquakes, more particularly in the Maghrib and in Syria, where the walls of Damascus and Emessa were destroyed. It was felt at Antiochia and El-Awassim *العواصم* in Mesopotamia and Mausil.

233. On Thursday, the 11th of Rabi-al-Akhar, many buildings were destroyed at Damascus by an earthquake.

234. At Herat, the houses were destroyed.

239. At Tiberias.

240. In the Maghrib, thirteen villages of Kairowan sunk.

242. In Shaban a very violent earthquake. At Tunis about 45,000 persons were buried under their houses; it extended also over Yemen, Khorasan, Fars, Syria, Bastam, *بسطام* Komm *قم* Kashan, *قاشان* Rai, *الدامغان* el-Damaghan, Nishapur, Taberistan and Ispahan. The mountains fell down, and the earth opened so extensively that men could walk into it; and in the village El-sud *السود* in Egypt, five stones fell from heaven. One stone fell on the tent of a Bedouin and set it on fire. The weight of these stones was ten rotles. In Yemen a hill covered with fields moved from its place and became the property of another tribe.

245. Earthquakes prevailed over the whole earth, and many towns and bridges were destroyed.



At Antiochia a mountain fell into the sea, with 1005 houses. It had been covered with about ninety villages. The river disappeared one farsang's distance. Dreadful noises were heard at Tiinnis.

In Mecca all the springs disappeared. The earthquake extended over Rakka, Harran, Ras el-'Ain, Emessa, Damascus, Rokha, Tarsus, Massissa and Adina. On the shores of Syria, in Laodicea, mountains moved with their inhabitants, and when it had destroyed *السفن* El-son, it crossed the Euphrates, and was felt in Khorassan.

249. In Dhul Hajj was a very violent earthquake, at Rai the houses fell down, and the people took flight into the fields.

258. At Wasit about 20,000 persons were buried under their houses, by an earthquake.

268. At Bagdad an earthquake, followed by torrents of rain and a thunder-storm.

280. At Ardebil six earthquakes took place in the course of this year; 100,000 persons died under the ruins of their houses. One of these earthquakes was preceded by an eclipse of the moon, darkness and wind.

288. An earthquake which lasted for some days.

289. In Rejeb at Bagdad, it lasted for some days.

On the day of Arafat which fell in summer, the wind was so cold, that the people were obliged to dress in furs.

300. A mountain split at Dinawar, and streams of water gushed out from it, which submerged many villages. A star split into three pieces, and this was followed by a frightful noise.

331. At Nesa many buildings tumbled down, and many people perished.

344. An earthquake in Egypt; it lasted three hours, and did great damage.

345. An earthquake at Hamadan, many lives were lost.

346. An earthquake at Rai and about that town, it lasted 40 days, then it discontinued for sometime, but it again returned. It extended to Talikán, and there sunk 150 villages belonging to Rai. At Rai a mountain sunk, and an enormous chasm opened from which water and smoke gushed out.

347. An earthquake at Komm, Holwan, Kaman and Jebal, many people perished; at the same time Bagdad suffered from an earthquake.

During the reign of Kafur the Akhshidian, repeated shocks of earthquakes visited Egypt within the space of six months.

362. Several castles in Syria were ruined by an earthquake.

363. At Wasit.

376. Many persons perished under the ruins caused by an earthquake.

393. In Syria, Abasim, and the Greek frontier, many castles were ruined by an earthquake.

398. In Shaban at Dinawar 10,000 persons perished under the ruins, besides those swallowed up by the ground. An inundation took place at Shiraz, and many ships were wrecked at sea.

During the reign of El-Hakim El-Obeidi, who ruled from 386 to 411 in Egypt, several earthquakes took place.

425. Many earthquakes took place in Egypt and Syria, by which one-third of Ramlah was destroyed. The walls of Jerusalem fell down, and many villages were swallowed up by the ground.

434. At Tebris, the fortress and the town were nearly destroyed by an earthquake, and about 40,000 persons perished. Many also perished at Tadmor and Balbek by the same cause.

438. Khelat and Diarbekr.

444. An earthquake in Ahwaz, by which much destruction was caused.

450. In the month of Shaban an earthquake at Bagdad, which extended to Hamadan and Tekrit.

455. Sha'ban; at Wasit, Antiochia, Laodicea, Sul, Akka and over all Syria. The walls of Tripolis were destroyed.

458. Jomadal Akhr in Khorassan, mountains were split, and many villages sunk under the inhabitants; some saved themselves by taking refuge in the open fields. Soyuti gives a copy of the document which was sent to Bagdad on this occasion. The earthquake is thus described:—"It caused the mountains to split; it cleft hills, overturned towns together with their inhabitants, and it levelled them with the ground in such a way that but few people escaped. Most buildings lay in ruins, and it is impossible to ascertain the number of those who perished."

تصدعت منها الجبال وتشقققت منها التلال وانقلبت القرى  
بأهلها واستوصلت من أصلها ولم يسلم من ساكنها الا القليل  
وخرّب اكثر بنيان البلاد وهلك خلق لا ياتي عليهم العدد

460. Tuesday 11th Jomadalawwal, an earthquake in Palestine : Ramla was destroyed. It extended to the Hejaz. It reached also Wadi El-Szafr, Khaiber, Bedr, Yanba, Wadi-kora, Teima and Tabuk, and it extended as far as Kufa ; only two houses of Ramla remained, 25,000 persons perished. 'Aila was destroyed with all its inhabitants, the earthquake was also felt at Jerusalem. The sea receded from the coast, but soon returned again into its place. In all these countries it was felt at the same hour.

462. Tuesday 11th Jomadalawwal at Ramla, and its dependencies, Jerusalem and Egypt. One corner of the principal mosque of Cairo gave way ; it was immediately succeeded by two other earthquakes.

464. The earth trembled six times at Bagdad in one earthquake.

478. In Moharrem there was an earthquake at Arjan, under which many Greeks perished.

479. In Irak, in Mesopotamia and in Syria, many buildings were destroyed by an earthquake.

484. In Syria and elsewhere, many buildings, ninety villages, and the walls of Antiochia were destroyed by an earthquake.

508. In Mesopotamia thirteen villages belonging to Roha were destroyed, and part of the walls of Harran ; also in Elsun about 100 houses and one-half of the fortress were destroyed.

511. In the days of Arafat were many houses destroyed at Bagdad.

513. The 5th of Ramadan Kazwin was destroyed by an earthquake which returned the following year precisely at the same time.

515. In the Hejaz.

516. At Jannezah part of its wall sunk.

524. Rabi 1st, at Bagdad, many houses were destroyed.

529. At Bagdad several shocks ; it began on Thursday the 11th of Shawal and lasted the whole day, amounting to six shocks until Friday night. On the 17th, three shocks took place from midnight till day-break.

532. An earthquake in Syria, Mesopotamia and Irak ; many persons were buried under the ruins.

533. At Jannezah 130,000 persons lost their lives. Jannezah sunk, and the spot was covered with black water for the distance of ten farsangs ; also Aleppo suffered eighty shocks in one night. It was felt over all the world, but strongest in Aleppo.

538. On the 14th of Zu-l-ka'de, which fell on a Tuesday, was a great earthquake over all the world.

544. At Bagdad about ten shocks were felt, and a mountain fell near Holwan; the Turkomans suffered greatly.

549. A great fiery wind blew one evening: every body believed that the last day was come; this was succeeded by an earthquake; the water of the Tigris disappeared for a while, but made again its appearance.

550. An earthquake at Bagdad.

552. In Syria, the greater part of Aleppo was destroyed; there suffered also Hamat, Shaizar, Emessa, Hisn al Akrad (the fort of the Kurds,) Laodicea, Antiochia. In Shaizar only one woman and a slave were saved.

In Kafertàb not one individual was saved. In Affania the castle was swallowed up, and many towns of the Franks suffered. The walls of several towns of Syria were destroyed; the children perished in the schools, and no one came to ask for them.

551. And the following year several earthquakes took place in Syria.

551. In the night of Rabi 2nd, was a great earthquake. It was preceded and followed by others. In the night of the 25th, at Aleppo, Hamat, and many other places, there were about forty shocks. It was one of the most tremendous earthquakes. On the 29th of the same month, an earthquake took place towards the end of the day, and continued during the night.

The *first* of *Ramazan* three shocks.

On the *third* of the same month three earthquakes; one at noon, the others at midnight.

In the middle of *Ramazan* there was an earthquake at night, and another in the morning, and two during the following night, and another shock the subsequent day. In the night of the 23d of *Ramazan* and in the second of *Shawal*, new shocks of earthquakes were felt which were more violent than the preceding ones, there were also earthquakes on the 7th, 16th and 17th, and in the night of the 22d.

552. In the night of 19th of *Safr*, a great earthquake took place which was followed by another shock; a third one took place in the night of the 20th, and the following day in Syria. In the night of the 25th *Jomada* 1st, four shocks. In the night of the 4th of *Jomada* 2d, several shocks,

particularly at Aleppo and Emessa, where they were destructive ; also in Hamat, Kafertab, and Taima. In the 4th of Rajeb at day time at Damascus it was so violent, that never the like had been seen ; it caused some destruction. In the night of Friday the 8th of Rajeb there were three earthquakes, which were followed by other earthquakes on Saturday, Sunday and Monday night, and several shocks after that. It did great damage in Hamat, Shiraz, and Emessa. In Damascus it did not begin before Monday the 29th of Rejeb, but caused great consternation. Another earthquake took place on the 24th of Ramazan, which was terribly felt at Aleppo, and Hamat (Apamea,) where it continued for sometime with intermissions. In the night of Saturday the 10th of Shawal and in the night of the 10th of Dilkada, and on the night of the 23d and 25th of the same month, people were so frightened by earthquakes, that they took refuge in the fields. Apamea was destroyed.

565. An earthquake in Syria, Mesopotamia and almost all the world ; it destroyed many walls and houses in Syria, more particularly at Damascus, Emessa, Apamea, Aleppo and Balbek.

574. In Armenia and in the country of Irbil.

575. A great earthquake.

592. Great wind over all the world, and an earthquake in Egypt.

593. A large star was split, and a tremendous noise was caused by it, which made the earth tremble. This took place on Friday the 9th of Jomada 2d.

597. In Shawan, there was an earthquake almost over all the world, more particularly in Upper Egypt, where it caused great destruction ; it extended over Syria and the sea, Mesopotamia, the Greek Empire and Irak ; it was particularly destructive in Syria. It was also felt in Armenia, Azerbaijan, and it is calculated that through this earthquake 1,100,000 lives were lost. The first shock lasted but a short time, but after that it continued for several days, and it seems that it came from Mesopotamia to the sea-coast.

578. In Shaban at Emessa, the castle of the Kurds was destroyed ; it extended as far as Nablus.

600. An earthquake in Egypt, Mesopotamia, Syria, Mausil, Irak, the Greek Empire and Cyprus ; it extended as far as Sabta in the Maghrib.

605. An earthquake at Nishapur, which lasted ten days.



608. In Egypt and Cairo many persons lost their lives, and great smoke arose west of Damascus.

623. On Monday, on the new moon of the latter Jomada, a noise was heard about Medina for two days, which was followed by a great earthquake, which caused great destruction.

657. In Egypt.

661. Mausil.

662. In Egypt.

667. In Sus, by which many castles were destroyed and many lives lost.

692. In the month of Safr at Ramla, Fakul and El-Kerk three villages were destroyed.

693. In Egypt.

702. On the 23d Dihilhaji, Thursday, in Egypt and Syria, many persons were buried under the ruins, and all Alexandria was submerged under the sea.

722. In Mohurram at Damascus at night.

729. In Rajeb, at Tripolis and in Syria.

744. In Egypt and Syria.

741. On the 4th of Ramazan, two shocks in one hour at Cairo.

775. A slight earthquake at Cairo.

787. On the 13th of Shaban, slight earthquake at Cairo and Egypt.

788. The 18th Jomada 2nd, a slight earthquake.

791. Sufr at Nishapur, violent wind and earthquake; many souls lost.

Nishapur was seven times destroyed by earthquakes, but this time was the worst.

Aleppo and its dependencies suffered from earthquakes on Jomada 2nd, and Shawan and Jomada 1st; and besides that several times in the same year.

809. An earthquake in Antiochia, many lives lost.

811. In Shaban about Aleppo and Tripolis, many lives lost by earthquakes

822. At Arzangán ارزنگان and Constantinople.

825. At Cairo.

828. In Shaban, in Egypt, three shocks in one day.

834. In Shaban, at Granada, and in Spain.

838. In Rabi 2d at Cairo.  
 841. In Shaban at Cairo, a slight earthquake.  
 861. At Arzangán, the most part of which was destroyed.  
 863. At Kerk 100 lives lost by an earthquake.  
 881. In Egypt a slight earthquake at night.  
 880. 17th of Mohurram, at noon, a violent earthquake in Egypt.  
 888. The 9th of Jomada 1st, on Sunday, a slight earthquake.  
 889. Rabi 1st, six or more terrible shocks at Aleppo.  
 896. 12th Jomada 2d, on Sunday, a slight earthquake in Egypt.  
 905. The night of Friday 27th Dilhajj, a slight earthquake.

*A general Statement of the Weather at Kotgurh and Soobathoo, for  
 1819-20-21. By Captain PATRICK GERARD.*

Clear, .. .. .	16 days
Fair, but cloudy and partially cloudy, .. .. .	8 ,,
Rainy and stormy, snow and hail, .. .. .	7 ,,
Thunder, .. .. .	none.

*Height of the Barometer.*

	Inches.	Thermometer.
Maximum, .. .. .	23.740	45°
Minimum, .. .. .	23.445	31°
Mean, .. .. .	23.592	38°

*Temperature of the air.*

*Temperature of the house.*

Maximum, .. No.	Maximum, ..	45°
Minimum only, .. 23° 1'	Minimum, ..	31°
Mean, ... No.	Mean, .. ..	38°

Prevailing wind during the month, westerly, but generally very variable.

*A general Statement of the Weather at Kotgurh, for February, 1819.*

Clear, .. .. .	11 days
Fair, but cloudy and partially cloudy, .. .. .	8 ,,
Rainy and stormy, snow and hail, .. .. .	9 ,,
Thunder, .. .. .	1 ,,

*Height of the Barometer.*

				Inches.	Thermometer.
Maximum,	..	..	..	23.810	44° 5'
Minimum,	..	..	..	23.535	39° 1'
Mean,	..	..	..	28.672	41° 8'
Temperature of the air.			Temperature of the house.		
Maximum,	..	45° 6'	Maximum,	..	47° 8'
Minimum,	..	27° 2'	Minimum,	..	37° 7'
Mean,	..	36° 4'	Mean,	..	2° 7'

Prevailing wind during the month easterly, but variable.

*A general Statement of the Weather at Soobathoo, for March 1819.*

Clear,	..	..	..	..	..	..	18 days.
Fair, but cloudy and partially cloudy,	..	..	..	..	..	..	10 „
Rainy and stormy,	..	..	..	..	..	..	3 „
Thunder,	..	..	..	..	..	..	3 „

*Height of the Barometer.*

				Inches.	Thermometer.
Maximum,	..	..	..	26.110	68°
Minimum,	..	..	..	25.640	62° 7'
Mean,	..	..	..	25.875	65° 3'
Temperature of the air.			Temperature of the house.		
Maximum,	..	80°	Maximum,	..	73° 5'
Minimum,	..	47°	Minimum,	..	50°
Mean,	..	63° 5'	Mean,	..	61° 7'

Prevailing wind during the month, south-westerly.

*A general Statement of the Weather at Soobathoo, for April 1819.*

Clear,	..	..	..	..	..	..	15 days.
Fair, but cloudy and partially cloudy,	..	..	..	..	..	..	10 „
Rainy and stormy,	..	..	..	..	..	..	5 „
Thunder,	..	..	..	..	..	..	4 „



*Height of the Barometer.*

			Inches.	Thermometer.
Maximum,	..	..	26.015	76° 2'
Minimum,	..	..	25.650	6° 5'
Mean,	..	..	25.832	70° 6'
Temperature of the air.			Temperature of the house.	
Maximum,	..	88°	Maximum,	.. 80° 5'
Minimum,	..	48°	Minimum,	.. 61°
Mean,	..	68°	Mean,	.. 70° 7'

Prevailing winds during the month, south-west and south south-west.

*A general Statement of the Weather at Kotgurh, for May 1819.*

Clear,	..	..	..	..	..	12 days.
Fair, but cloudy and partially cloudy,	..	..	..	..	..	5 „
Rainy, stormy and hail,	..	..	..	..	..	14 „
Thunder,	..	..	..	..	..	8 „

*No Barometer up.*

Temperature of the air.			Temperature of the house.		
Maximum,	..	No.	Maximum,	..	69°
Minimum only,	..	42°	Minimum,	..	55° 3'
Mean,	..	.. No.	Mean,	..	62° 1'

Prevailing winds during the month, west and south-south-west.

*A general Statement of the Weather at Soobathoo, for June 1819.*

Clear,	..	..	..	..	..	9 days.
Fair, but cloudy and partially cloudy,	..	..	..	..	..	11 „
Rainy and stormy,	..	..	..	..	..	10 „
Thunder,	..	..	..	..	..	8 „

*Height of the Barometer.*

			Inches.	Thermometer.
Maximum,	..	..	25.980	85°
Minimum,	..	..	25.640	77° 5'
Mean,..	..	..	25.810	81° 2'

Temperature of the air.			Temperature of the house.		
Maximum,	..	93°	Maximum,	..	86°
Minimum,	..	65°	Minimum,	..	70°
Mean,	..	79°	Mean,	..	78°

Prevailing winds during the month, west and south-west, and south south-west.

*A general Statement of the Weather at Kotgurh, for July 1819.*

Clear,	..	..	..	..	..	..	2 days.
Fair, but cloudy and partially cloudy,	..	..	..	..	..	..	10 ,,
Rainy and stormy,	..	..	..	..	..	..	19 ,,
Thunder,	..	..	..	..	..	..	6 ,,

*Height of the Barometer.*

				Inches.	Thermometer,
Maximum,	..	..	..	23.730	73° 9'
Minimum,	..	..	..	23.535	68° 1'
Mean,	..	..	..	23.632	71°

Temperature of the air.			Temperature of the house.		
Maximum,	..	No.	Maximum,	..	74° 9'
Minimum only,	..	55° 9'	Minimum,	..	63° 5'
Mean,	..	No.	Mean,	..	69° 2'

Prevailing winds during the month, east and east south-east.

*A general Statement of the Weather at Kotgurh, for August 1819.*

Clear,	..	..	..	..	..	..	1 day.
Fair, but cloudy and partially cloudy,	..	..	..	..	..	..	10 ,,
Rainy and stormy,	..	..	..	..	..	..	20 ,,
Thunder,	..	..	..	..	..	..	5 ,,

*Height of the Barometer.*

				Inches.	Thermometer.
Maximum,	..	..	..	23.765	72° 9'
Minimum,	..	..	..	23.500	66° 5'
Mean,	..	..	..	23.632	69° 7'

Temperature of the air.			Temperature of the house.		
Maximum,	..	No.	Maximum,	..	73° 7'

Minimum only, .. 57° 1'      Minimum, .. 64° 2'

Mean, .. .. No.      Mean, .. 68° 9'

Prevailing winds during the month, easterly.

*A general Statement of the Weather, for September 1819.*

Absent this month on a tour into the interior, but Thermometrical observations were daily taken and recorded at every place during the journey.

Clear,	..	..	..	..	..	..	..	2 days'
Fair, but cloudy and partially cloudy,	..	..	..	..	..	..	..	6 ,,
Rainy and stormy.	..	..	..	..	..	..	..	22 ,,
Thunder,	..	..	..	..	..	..	..	4 ,,

The prevailing winds during the month, easterly.

*A general Statement of the Weather, for October 1819.*

Still absent all this month on a tour into the interior.

Clear,	..	..	..	..	..	..	..	19 days.
Fair, but cloudy and partially cloudy,	..	..	..	..	..	..	..	6 ,,
Rainy and stormy, snow and hail,	..	..	..	..	..	..	..	6 ,,
Thunder,	..	..	..	..	..	..	..	none.

Prevailing winds during the month, westerly.

*A general Statement of the Weather at Kotgurh, for November 1819.*

Clear,	..	..	..	..	..	..	..	23 days'
Fair, but cloudy and partially, cloudy,	..	..	..	..	..	..	..	4 ,,
Rainy, and stormy and snow,	..	..	..	..	..	..	..	3 ,,
Thunder,	..	..	..	..	..	..	..	1 ,,

*Height of the Barometer.*

				Inches.	Thermometer.
Maximum,	..	..	..	23.820	50°
Minimum,	..	..	..	23.600	46°
Mean,	..	..	..	23.610	48°

Temperature of the air.

Temperature of the house.

Maximum,	..	No.	Maximum,	..	51°
Minimum,	..	34°	Minimum,	..	45°
Mean,	..	No.	Mean,	..	48°

Prevailing winds during the month, westerly.

*A general Statement of the Weather at Kotgurh, for December 1819.*

Clear, .. .. .	11 days.
Fair, but cloudy and partially cloudy. .. ..	13 „
Rainy, stormy and snow, .. .. .	7 „
Thunder, .. .. .	1 „

*Height of the Barometer.*

	Inches.	Thermometer.
Maximum, .. .. .	23.900	48° 5'
Minimum, .. .. .	23.600	43°
Mean, .. .. .	23.750	45° 7'

## Temperature of the air.

## Temperature of the house.

Maximum, ..	No.	Maximum, ..	50°
Minimum, ..	30° 5'	Minimum, ..	42° 8'
Mean, .. .. .	No.	Mean, .. .. .	46° 4'

Prevailing winds during the month, easterly.

*A general Statement of the Weather, for 1819.*

1819.	Clear days.	Fair, days.	Rainy, stormy, snow and hail days.	Thunder days.
January, .. .. .	16	8	7	none.
February, .. .. .	11	8	9	1
March, .. .. .	18	10	3	3
April, .. .. .	15	10	5	4
May, .. .. .	12	5	14	8
June, .. .. .	9	11	10	8
July, .. .. .	2	10	19	6
August, .. .. .	1	10	20	5
September, .. .. .	2	6	22	4
October, .. .. .	19	6	6	none.
November, .. .. .	23	4	3	1
December, .. .. .	11	13	7	1
Total, .. .. .	139	101	125	41

NOTE.—In the absence of the Maximum Temperature of the air for some of the months, the Mean Temperature of the house will nearly come to the same result as if the Maximum Temperature of the air had been ascertained and recorded. Indeed in the course of many years' observations, the difference between the Mean Temperature of the air and that of the house, if any thing, is so trifling, that it is hardly deserving of notice.



Rainy and stormy, snow and hail,	..	..	..	9	„
Thunder,	..	..	..	4	„

*Height of the Barometer.*

			Inches.	Thermometer.
Maximum,	..	..	23·860	54°
Minimum,	..	..	23·600	46°
Mean,	..	..	23·730	50°
Temperature of the air.			Temperature of the house,	
Maximum,	..	No.	Maximum,	.. 54° 6'
Minimum,	only	.. 37° 5'	Minimum,	.. 46°
Mean,	..	No.	Mean,	.. 50° 3'

Prevailing winds during the month, westerly.

*A general Statement of the Weather at Kotgurh for April 1820.*

Absent all this month on a tour through the protected hill states, situate between the rivers Sutluj and Jumna, on the hither or Indian side of the Himalaya range, but observations were daily taken and recorded during the journey.

Clear,	..	..	..	..	..	13	days.
Fair, but cloudy and partially cloudy,	..	..	..	..	..	4	„
Rainy, stormy, and hail,	..	..	..	..	..	13	„
Thunder,	..	..	..	..	..	6	„

Prevailing winds during the month, westerly.

*A general Statement of the Weather at Kotgurh for May, 1820.*

Clear	..	..	..	..	..	13	days.
Fair, but cloudy and partially cloudy,	..	..	..	..	..	8	„
Rainy, stormy, and hail,	..	..	..	..	..	10	„
Thunder,	..	..	..	..	..	8	„

*Height of the Barometer.*

			Inches.	Thermometer.
Maximum,	..	..	23·800	64°
Minimum,	..	..	23·520	65° 9'
Mean,	..	..	23·660	64° 9'

Temperature of the air.			Temperature of the house.		
Maximum, ..	No.		Maximum, ..	73° 4'	
Minimum, only	45°		Minimum, ..	58°	
Mean, ..	No.		Mean, ..	65° 7'	

Prevailing winds during the month, westerly.

*A general Statement of the Weather at Kotgurh, for June 1820.*

Clear, .. .. .	..	..	..	..	..	7 days.
Fair, but cloudy and partially cloudy	..	..	..	..	..	9 „
Rainy, stormy and hail, .. .. .	..	..	..	..	..	14 „
Thunder, .. .. .	..	..	..	..	..	6 „

*Height of the Barometer.*

			Inches.	Thermometer.
Maximum, .. .. .	..	..	23·700	75° 4'
Minimum, .. .. .	..	..	23·440	67° 8'
Mean, .. .. .	..	..	23·570	71° 6'
Temperature of the air.			Temperature of the house.	
Maximum, ..	87° 4'		Maximum, ..	77° 1'
Minimum, ..	54°		Minimum, ..	63°
Mean, ..	70° 7'		Mean, ..	70°

Prevailing winds during the month, partly westerly and partly easterly.

*A general Statement of the Weather at Kotgurh, for July 1820.*

Clear, .. .. .	..	..	..	..	..	none.
Fair, but cloudy and partially cloudy,	..	..	..	..	..	3 days.
Rainy and stormy, .. .. .	..	..	..	..	..	28 „
Thunder, .. .. .	..	..	..	..	..	2 „

*Height of the Barometer.*

			Inches.	Thermometer.
Maximum, .. .. .	..	..	23·730	70° 6'
Minimum, .. .. .	..	..	23·440	65°
Mean, .. .. .	..	..	23·585.	67° 8'

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Temperature of the air.			Temperature of the house.		
Maximum,	..	81° 8'	Maximum,	..	76°
Minimum,	..	57° 7'	Minimum,	..	64° 4'
Mean,	..	69° 7'	Mean	..	70° 2'

Prevailing winds during the month, easterly.

*A general Statement of the Weather at Kotgurh, for August 1820.*

Clear,	..	..	..	..	..	..	..	none.
Fair, but cloudy and partially cloudy,	..	..	..	..	..	..	..	8 days.
Rainy and stormy,	.	..	..	..	..	..	..	23 „
Thunder,	..	..	..	..	..	..	..	2 „

*Height of the Barometer.*

				Inches.	Thermometer.
Maximum,	..	..	..	23·710	69° 7'
Minimum,	..	..	..	23·515	69°
Mean,	..	..	..	23·612	69° 3'
Temperature of the air.				Temperature of the house.	
Maximum,	..	77° 8'	Maximum,	..	74°
Minimum,	..	56° 5'	Minimum,	..	64° 6'
Mean,	..	67° 1'	Mean,	..	69° 3'

Prevailing winds during the month, easterly,

*A general Statement of the Weather at Kotgurh, for September 1820.*

Clear,	..	..	..	..	..	..	..	5 days.
Fair, but cloudy and partially cloudy,	..	..	..	..	..	..	..	11 „
Rainy and stormy,	..	..	..	..	..	..	..	14 „
Thunder,	..	..	..	..	..	..	..	2 „

*Height of the Barometer.*

				Inches.	Thermometer.
Maximum,	..	..	..	23·705	69° 4'
Minimum,	..	..	..	23·505	67°
Mean,	..	..	..	23·605	68° 2'



Temperature of the air.			Temperature of the house.		
Maximum,	..	73° 7'	Maximum,	..	75° 9'
Minimum,	..	60° 7'	Minimum,	..	52° 8'
Mean,	..	67° 2'	Mean,	..	64° 3'

Prevailing winds during the month, easterly.

*A general Statement of the Weather at Kotgurh, for October 1820.*

Clear,	..	..	..	..	..	..	20 days.
Fair, but cloudy and partially cloudy,	..	..	..	..	..	..	5 „
Rainy and stormy,	..	..	..	..	..	..	6 „
Thunder,	..	..	..	..	..	..	3 „

*Height of the Barometer.*

			Inches.	Thermometer.
Maximum,	..	..	23·835	58°
Minimum,	..	..	23·535	62° 4'
Mean,	..	..	23·685	60° 2'

Temperature of the air.			Temperature of the house.		
Maximum,	..	71°	Maximum,	..	68° 2'
Minimum,	..	43° 8'	Minimum,	..	52°
Mean	..	57° 4'	Mean,	..	60° 1'

Prevailing winds during the month, easterly and westerly.

*A general Statement of the Weather at Rampoor, for November 1820.*

*No Barometer with me.*

Clear,	..	..	..	..	..	..	18 days.
Fair, but cloudy and partially cloudy,	..	..	..	..	..	..	7 „
Rainy and stormy,	..	..	..	..	..	..	5 „
Thunder,	..	..	..	..	..	..	1 „

Temperature of the air.			Temperature in a tent.		
Maximum,	..	78° 4'	Maximum,	..	79°
Minimum,	..	37° 6,	Minimum,	..	54°
Mean,	..	58°	Mean,	..	66° 5'

Prevailing winds during the month at this place, south-west and south south-west.

*A general Statement of the Weather, at Rampoor for December 1820.*

Clear, .. .. .	17 days.
Fair, but cloudy and partially cloudy, .. .. .	10 „
Rainy, stormy and snow, .. .. .	4 „
Thunder, .. .. .	none.

## Temperature of the air.

Maximum, ..	72° 7'
Minimum, ..	32° 7'
Mean, .. ..	52° 7'

## Temperature in a tent.

Maximum, ..	No.
Minimum, only	39°
Mean, .. ..	No.

Prevailing winds during the month at this place, south-west and south south-west.

*A general Statement of the Weather for 1820.*

1820.	Clear days.	Fair days.	Rainy and stormy, snow and hail days.	Thunder days.
January, .. .. .	26	3	2	2
February, .. .. .	14	6	9	2
March, .. .. .	16	6	9	4
April, .. .. .	13	4	13	6
May, .. .. .	13	8	10	8
June, .. .. .	7	9	14	6
July .. .. .	none	3	28	2
August, .. .. .	ditto	8	23	2
September, .. .. .	5	11	14	2
October, .. .. .	20	5	6	3
November, .. .. .	18	7	5	1
December, .. .. .	17	10	4	none
Total, .. .. .	149	80	137	38

*Note.*—Having been obliged to proceed to and remain at this place on duty, it may be as well to mention, that Rampoor is a small town and the capital of Bussahir, about 22 miles beyond the military outpost of Kotgurh, situate on the left bank of the Sutlej, and the winter residence of the Rajah of that state. It is in latitude 31° 27' and longitude 77° 38' and its elevation above the level of the sea by Barometrical observation is 3,398 feet.

*A general Statement of the Weather at Kotgurh, for January 1821.**No Barometer up.*

Clear, .. .. .	11 days.
Fair, but cloudy and partially cloudy, .. .. .	12 „
Rainy, stormy, snow and hail, .. .. .	8 „
Thunder, .. .. .	none.

## Temperature of the air.

## Temperature of the house.

Maximum, ..	52° 2'	Maximum, ..	47° 8'
Minimum, ..	28° 4'	Minimum, ..	36° 8'
Mean, .. ..	40° 3'	Mean, .. ..	42° 3'

Prevailing winds during the month, westerly.

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*A general Statement of the Weather at Kotgurh, for February 1821.*

Clear, .. .. .	11 days.
Fair, but cloudy and partially cloudy, .. .. .	14 „
Rainy, stormy and hail, .. .. .	3 „
Thunder, .. .. .	2 „

## Temperature of the air.

## Temperature of the house.

Maximum, ..	68° 7'	Maximum, ..	59°
Minimum, ..	29°	Minimum, ..	37°
Mean, .. ..	48° 8'	Mean, .. ..	48°

Prevailing winds during the month, partly west and partly east.

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*A general Statement of the Weather at Soobathoo, for March 1821.*

Clear, .. .. .	18 days.
Fair, but cloudy and partially cloudy, .. .. .	5 „
Rainy, stormy and hail, .. .. .	8 „
Thunder, .. .. .	4 „

*Height of the Barometer.*

	Inches.	Thermometer.
Maximum, .. .. .	26.105.	71° 3'
Minimum, .. .. .	25.780.	59° 8'
Mean, .. .. .	25.942.	65° 5'

Temperature of the air.			Temperature of the house.		
Maximum,	..	78° 5'	Maximum,	..	73°
Minimum,	..	48° 3'	Minimum,	..	56°
Mean,	..	63° 4'	Mean,	..	64° 5'

Prevailing wind during the month, westerly.

*A general Statement of the Weather at Soobathoo, for April 1821.*

Clear,	..	..	..	..	..	..	18	days.
Fair, but cloudy and partially cloudy,	..	..	..	..	..	..	9	„
Rainy, stormy and hail,	..	..	..	..	..	..	3	„
Thunder,	..	..	..	..	..	..	4	„

*Height of the Barometer.*

			Inches.	Thermometer.
Maximum,	..	..	26·200.	73°
Minimum,	..	..	25·850.	67° 8'
Mean,	..	..	26·025.	70° 4'

Temperature of the air.			Temperature of the house.		
Maximum,	..	87° 4'	Maximum,	..	81° 4'
Minimum,	..	54° 5'	Minimum,	..	64° 8'
Mean,	..	70° 9'	Mean,	..	73° 1'

Prevailing winds during the month, west and south-west.

*A general Statement of the Weather at Kotgurh, for May 1821.*

Clear,	..	..	..	..	..	..	15	days.
Fair, but cloudy and partially cloudy,	..	..	..	..	..	..	6	„
Rainy, stormy and hail,	..	..	..	..	..	..	10	„
Thunder,	..	..	..	..	..	..	10	„

*Height of the Barometer.*

			Inches.	Thermometer.
Maximum,	..	..	23·670.	82° 7'
Minimum,	..	..	23·530.	64° 5'
Mean,	..	..	23·600.	73° 6'

Temperature of the air.		Temperature of the house.	
Maximum, ..	85°	Maximum, ..	82° 7'
Minimum, ..	50° 2'	Minimum, ..	63° 6'
Mean, ..	67° 6'	Mean, ..	73° 1'

Prevailing winds during the month, westerly.

---

*A general Statement of the Weather at Kotgurh, for June 1821.*

Clear, .. .. .	18 days.
Fair, but cloudy and partially cloudy, .. .. .	4 ,,
Rainy and stormy, .. .. .	8 ,,
Thunder, .. .. .	5 ,,

*Height of the Barometer.*

	Inches.	Thermometer.
Maximum, .. .. .	23·795.	75°
Minimum, .. .. .	23·480.	72° 3'
Mean, .. .. .	23·637.	73° 6'

Temperature of the air.		Temperature of the house.	
Maximum, ..	88° 4'	Maximum, ..	81° 3'
Minimum, ..	56°	Minimum, ..	65° 4'
Mean, ..	72° 2'	Mean, ..	73° 3'

Prevailing wind during the month, westerly.

---

*A general Statement of the Weather at Kotgurh, for July 1821.*

Clear, .. .. .	none.
Fair, but cloudy and partially cloudy, .. .. .	10 days.
Rainy and stormy, .. .. .	21 ,,
Thunder, . .. .	5 ,,

*Height of the Barometer.*

	Inches.	Thermometer.
Maximum, .. .. .	23·760.	73° 7'
Minimum, .. .. .	23·470.	70°
Mean, .. .. .	23·615.	71° 8'

Temperature of the air.			Temperature of the house.		
Maximum, ..	85° 3'		Maximum, ..	81° 5'	
Minimum, ..	59° 4'		Minimum, ..	66°	
Mean, ..	72° 3'		Mean, ..	73° 7'	

Prevailing winds during the month, west and east-north-east.

*A general Statement of the Weather at Kotgurh, for August 1821.*

Clear, .. .. .	..	..	..	..	..	..	..	..	none.
Fair, but cloudy and partially cloudy,	..	..	..	..	..	..	..	..	12 ,,
Rainy and stormy,	..	..	..	..	..	..	..	..	19 ,,
Thunder, .. .. .	..	..	..	..	..	..	..	..	2 ,,

*Height of the Barometer.*

			Inches.	Thermometer.
Maximum, .. .. .	..	..	23·695.	73°
Minimum, .. .. .	..	..	23·530.	66° 2'
Mean, .. .. .	..	..	23·612.	69° 6'
Temperature of the air.			Temperature of the house.	
Maximum, ..	75°		Maximum, ..	75° 1'
Minimum, ..	58°		Minimum, ..	62°
Mean, ..	66° 6'		Mean, ..	68° 5'

Prevailing winds during the month, north-east and east-north-east.

*A general Statement of the Weather at Kotgurh, for September 1821.*

Clear, .. .. .	..	..	..	..	..	..	..	..	6 days.
Fair, but cloudy and partially cloudy,	..	..	..	..	..	..	..	..	8 ,,
Rainy and stormy,	..	..	..	..	..	..	..	..	16 ,,
Thunder, .. .. .	..	..	..	..	..	..	..	..	3 ,,

*Height of the Barometer.*

			Inches.	Thermometer.
Maximum, .. .. .	..	..	23·875.	69° 6'
Minimum, .. .. .	..	..	23·680.	59° 6'
Mean, .. .. .	..	..	23·777.	64° 6'

Temperature of the air.		Temperature of the house.	
Maximum,	.. 76° 3'	Maximum,	.. 75° 5'
Minimum,	.. 48° 7'	Minimum,	.. 48° 5'
Mean,	.. 62° 5'	Mean,	.. 62°

Prevailing winds during the month, west and east-north-east.

-----

*A general Statement of the Weather at Kotgurh, for  
October 1821.*

Clear,	..	..	..	..	..	25 days.
Fair, but cloudy and partially cloudy,	..	..	..	..	..	1 „
Rainy and stormy,	..	..	..	..	..	5 „
Thunder,	..	..	..	..	..	1 „

*Height of the Barometer.*

		Inches.	Thermometer.
Maximum,	.. .. .	23·930.	63°
Minimum,	.. .. .	23·650.	55°
Mean,	.. .. .	23·790.	59°

Temperature of the air.		Temperature of the house.	
Maximum,	.. 67°	Maximum,	.. 66° 7'
Minimum,	.. 41° 4'	Minimum,	.. 51°
Mean,	.. 54° 2'	Mean,	.. 58° 8'

Prevailing winds during the month, west and east-north-east.

-----

*A general Statement of the Weather at Kotgurh, for  
November 1821.*

Clear,	..	..	..	..	..	19 days.
Fair, but cloudy and partially cloudy,	..	..	..	..	..	9 „
Rainy and stormy,	..	..	..	..	..	2 „
Thunder,	..	..	..	..	..	none.

5 H

*Height of the Barometer.*

				Inches.	Thermometer.
Maximum,	..	..	..	23·860.	58° 6'
Minimum,	..	..	..	23·600.	49°
Mean,	..	..	..	23·730.	53° 8'
Temperature of the air.			Temperature of the house.		
Maximum,	..	59° 8'	Maximum,	..	59°
Minimum,	..	42°	Minimum,	..	48° 3'
Mean,	..	50° 9'	Mean,	..	53° 6'
Prevailing winds during the month, west and south-west.					

—————

*A general Statement of the Weather at Soobathoo, for  
December 1821.*

Clear,	..	..	..	..	..	..	14 days.
Fair, but cloudy and partially cloudy,	..	..	..	..	..	..	12 ,,
Rainy and stormy, snow and hail,	..	..	..	..	..	..	5 ,,
Thunder,	..	..	..	..	..	..	1 ,,

*Height of the Barometer.*

				Inches.	Thermometer.
Maximum,	..	..	..	26·100.	59° 6'
Minimum,	..	..	..	25·900.	52°
Mean,	..	..	..	26·000.	55° 8'
Temperature of the air.			Temperature of the house.		
Maximum,	..	66°	Maximum,	..	59° 6'
Minimum,	..	39° 5'	Minimum,	..	49°
Mean,	..	52° 7'	Mean,	..	54° 3'
Prevailing winds during the month, west and south-west.					



*A general Statement of the Weather, for 1821.*

1821.	Clear days.	Fair days.	Rainy and stormy, snow and hail days.	Thunder days.	
January, .. .. .	11	12	8	none.	
February, .. .. .	11	14	3		
March, .. .. .	18	5	8		
April, .. .. .	18	9	3		
May, .. .. .	15	6	10		
June, .. .. .	18	4	8		
July, .. .. .	none.	10	21		
August, .. .. .	none.	12	19		
September, .. .. .	6	8	16	2	
October, .. .. .	25	1	5		
November, .. .. .	19	9	2		none.
December, .. .. .	14	12	5		1
Total, .. .. .	155	102	108	38	

*Note.*—It appears necessary here to remark, that during the years 1819-20 and 21, Simla was no place of resort for invalids and visitors, except for few officers belonging to the 1st Nussereee Battalion stationed at Soobathoo, and thither they proceeded for the hottest months, May and June, till the rains had fairly set in. In 1819, a double-poled tent was pitched by Lieutenant, now Lieutenant Colonel R. Ross, on the north-west extremity of the ridge, immediately above the small village of Simla, and afterwards thatched over, having for its walls, spars, grass and mud as a protection from the weather, and being on the site of the Commander-in-Chief (Sir H. Fane's,) now Major General Lumley's house. In 1822, the first permanent cottage, of the usual materials, stone and timber, roofed with pine wood shingles, was erected on a rising ground on a small height on the same ridge by Captain, now Major C. P. Kennedy, the successor of Lieutenant R. Ross, as Assistant Political Agent for the Protected Hill States, and although the out-post of Kotgurh is 650 or 700 feet lower in elevation than Simla, being four long marches beyond it, and further into the interior, and not subject to the influence of the plains, which Simla is in a more or less degree, yet the temperature at Kotgurh for the above years will give a very fair notion of that which may be generally experienced at Simla, as in subsequent years, on comparison, the average temperature of the former place, proved only to be a trifle lower than that observed and recorded at the latter.

P. GERARD.

Meteorological Register kept at Kathmandoo, Valley of Nepal. By Captain G. H. ROBINSON, for the month of March 1834.

March 1834.	Thermometer inside.				Thermometer outside.				Barometer with Ther. attached.				Range of Ther. attached.		Range of Ther. in-ometer in-side.	Range of Ther. in-ometer out-side.	Rain.
	8	10	2	4	8	10	2	4	8	10	2	4	Bar.	Ther.			
1	62	78	63	63	48	...	...	...	25.012	25.007	24.997	24.997	-.008	9	5	...	...
2	61	60	61.5	62	45	61	68	68	25.024	25.014	25.011	25.006	-.012	10	2	...	...
3	62	78	62	62	42	58	70	68	25.031	25.027	25.023	25.006=65	-.014	11	4	...	...
4	62	58	62	63.5	44	60	71.5	71	25.044	25.42	25.049	25.41	-.033	12	4.5	...	...
5	62	62	63.5	63.5	47.5	62	71	71	25.044	25.239	25.243	25.238	-.019	8	4.5	...	...
6	62	59.5	62	62	47	65	...	72	25.209	25.208	25.197	25.197	-.016	10	2	...	...
7	60	60	...	62	50	...	...	...	25.205	25.208	...	...	-.010	10	...	...	...
8	62	...	...	66	50	...	...	...	25.193	25.168	...	25.166	-.010	11	2	...	...
9	64	...	...	66	52	...	...	...	25.160	25.077	...	25.060	-.082	7	1	...	...
10	64	63	...	64	52	...	...	...	25.067	...	...	25.044	-.007	10	2	...	...
11	62	6	...	62	...	...	...	...	25.071	25.053	...	25.012	-.007	9	2.5	...	...
12	62	61	63.5	64	49	...	...	66	25.057	25.051	25.041	...	-.007	9	2	...	...
13	62	61	63.5	63.5	48	58	63.5	63.5	25.047	25.052	25.044	...	-.010	5	2	...	...
14	63	61	63	...	49	56	...	...	25.064	25.064	...	...	-.007	4	...	...	...
15	62	...	...	...	52	...	...	...	25.061	25.051	25.046	...	-.016	8	4	...	...
16	62	62	63	...	50	58	66	66	25.085	25.051	25.046	25.036	-.016	4	4	...	...
17	62	60	63	64	50	56	68	67	25.057	25.050	25.053	...	-.010	8	2.5	...	...
18	60	59	61.5	62	45.5	68	...	...	25.070	25.062	25.084	...	-.040	11	3	...	...
19	60	59	61	62	47	59	70	69	25.097	25.092	...	25.084	-.014	11	6	...	...
20	58	58	61	62	45	60	74	74	25.102	25.096	...	25.088	-.009	10	4.5	...	...
21	60	60.5	64	64	46	61.5	74	74	25.111	25.105	25.095	25.093	-.074	8	3	...	...
22	62	64	63.5	64	49.5	75.5	...	...	25.213	25.069	25.267	25.267	-.012	8	3	...	...
23	62	62	64	65	51	65	72	72	25.256	25.250	25.248	25.246	-.007	8	2	...	...
24	63.5	62	64.5	65	54	70	...	...	25.254	25.239	25.241	25.241	-.080	3	2	...	...
25	63	62	64	65	54	66	70	68	25.254	25.236	25.245	25.251	-.002	6	2	...	...
26	63	61	66	66	...	70	73	68	25.249	25.142	25.133	25.133	-.002	6	2	...	...
27	64	64	65	...	60	71	79.5	...	25.123	25.126	25.84	25.84	-.030	7.5	2.5	...	...
28	64	64	66.5	...	60	64	76	...	25.081	25.029	25.77	25.069	-.007	6	16	...	...
29	64	65	70	70	66	72	80	80	25.093	25.085	25.79	25.79	-.007	6	14	...	...
30	68	65	66.5	66.5	61	67.7	...	...	25.098	25.085	25.86	25.86	-.000	3	...	...	...
31	66	65	68	68	58	68	78	70	25.098	25.083	25.78	25.078	-.000	8	3	...	...

Rain 3 days.  
.677

*Supplementary Note to Mr. Commissioner LUSHINGTON'S Report on the Copper Mines of Kemaon and Ghurwal, Journal, p. 472.*

Since the above report was submitted to Government in 1841, I have had the pleasure of meeting and forming the acquaintance of Captain Drummond, (late one of the Cabool hostages,) to whom allusion is made in the first part of the report, as having suggested the experimental working of the Pokree mine. Captain Drummond's opinion is, I believe, still favourable to further experiments being made in the Kemaon and Ghurwal mines under European superintendence, and as he has seen and examined all the papers connected with Mr. Wilkin's operations, and knows much more of these matters than I can pretend to do, his opinion is likely to be more correct than mine.

As connected with Mr. Wilkin, there is one important omission in my report, which in justice to him I would wish to supply. I allude to his uniformly kind and conciliating treatment of the Natives, and to the fact of my never having had a single complaint preferred to me by any of them, in the least affecting his character, from the time of his location at Pokree to the date of his departure from the province.

*Almora, 29th August, 1843.*

G. S. LUSHINGTON.

*Note on a Fossil Antelope, from the Dadoopoor Museum. By Capt. W. E. BAKER, Bengal Engineers.*

We have had great pleasure in doing full justice, as far as our humble efforts could do so, to this highly interesting notice, in procuring the aid of the best artist in Calcutta, who, our readers may be assured, has given a most exact *fac simile* of Captain Baker's capital pen and ink drawing.—EDS.

Among the notices of the Sub-Himalayan fossils which have from time to time appeared in the Journal of the Asiatic Society, but few have been devoted to the remains of Ruminantia. The Sivatherium indeed was one of the first described, and the Camelidæ subsequently formed the subject of a paper by Capt. Cautley and Dr. Falconer; but the various species of Bos, Cervus, Antelope, &c. which

occur in this deposit more frequently perhaps than any other, have hitherto passed unnoticed.

To supply this deficiency, however, is not my present purpose. I have neither leisure, nor a sufficiently extensive museum of comparative Osteology, to attempt the description, or even the classification of our fossil Ruminants; but it appeared to me to be a circumstance deserving the attention of other enquirers, that there is a strong resemblance between the skulls of some of our Antelopes, and those figured in Capt. Harris's splendid work, "Portraits of Game and Wild Animals in Southern Africa."

The degree of resemblance will be judged from the accompanying plate, in which Fig. 1 and 2, represent a front and side view of one of the fossils above alluded to, about one-fourth the natural size. The face of this fossil is tolerably perfect, excepting the extremities of the intermaxillary bones, but the occipital portion of the head and the tips of the horns are wanting.

Fig. 3 and 4 are similar views of the skull of an Indian Antelope, (*A. cervicapra*), drawn on the same scale.

Fig. 5 and 6 are outlines of the heads respectively of the Hartebeest, (*Acronotus Caama*), and the "Sassaybe," (*Acronotus lunata*), copied from Capt. Harris's plate.

The fossil differs from the Indian Antelope, in the greater elongation of its face, the straightness of its profile, the close juxta-position of its horns at the base; the absence or small development of the infra-orbital sinus, and the small size of the supra-orbital foramina. In all these respects it resembles one or other of the African genera, from the descriptions of which, by Capt. Harris, I have extracted the following:—

*Acronotus Caama* or Hartebeest. "Head remarkably heavy, narrow and long. Horns seated upon the summit of a beetling ridge above the frontals; very close together, and almost touching at the base. No suborbital sinus, but a constant mucous discharge of a waxy nature."

*Acronotus Lunata*, or Sassaybe. "Head long, narrow and shapeless; wearing a bubaline appearance, facial line straight. Eyes high in the cranium, indistinct lachrymary perforation."

As far therefore as can be judged from a description which, like the above, has no particular reference to the Osteology of these animals,

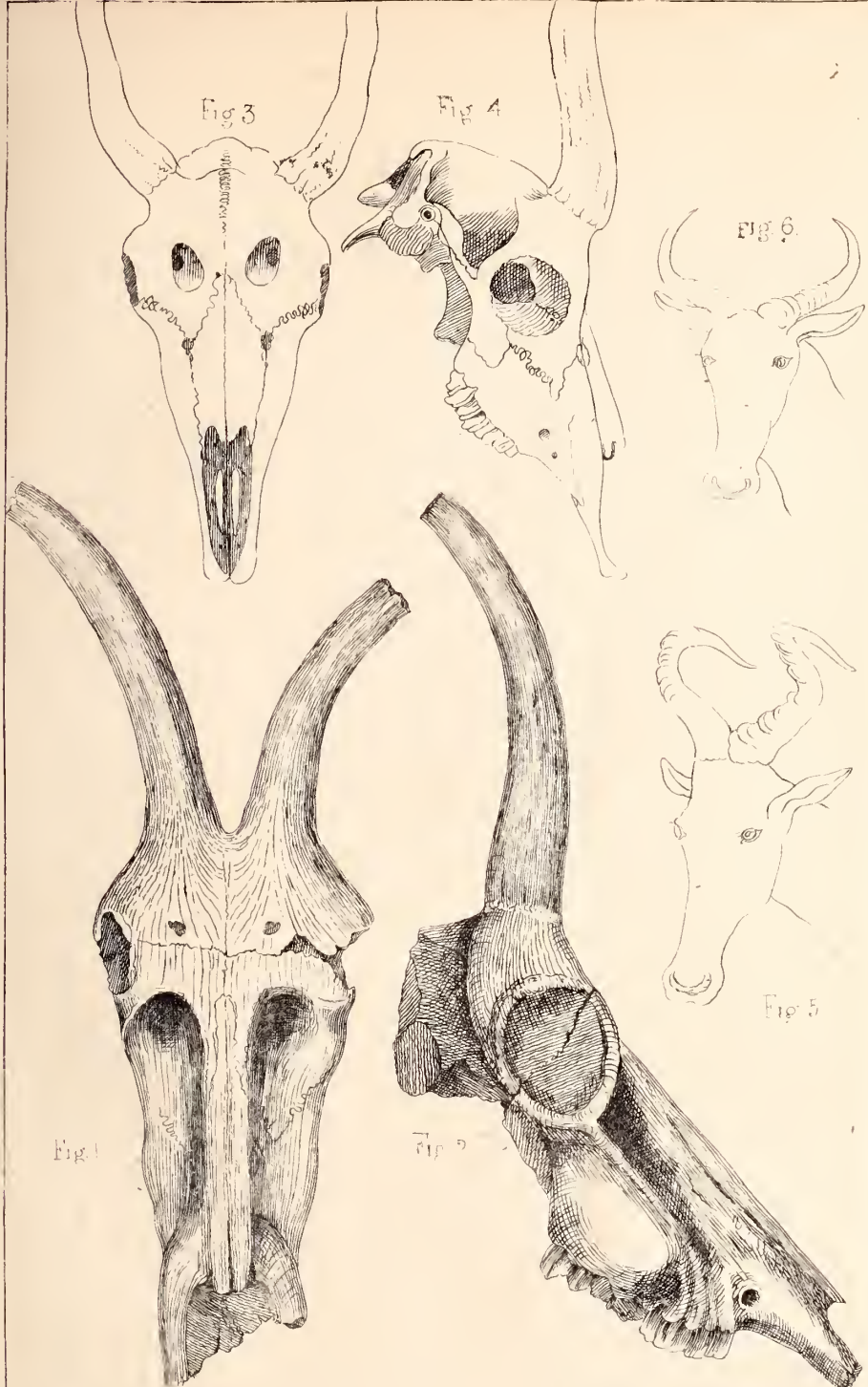


Fig 1

Fig 2

Fig 3

Fig 4

Fig 6

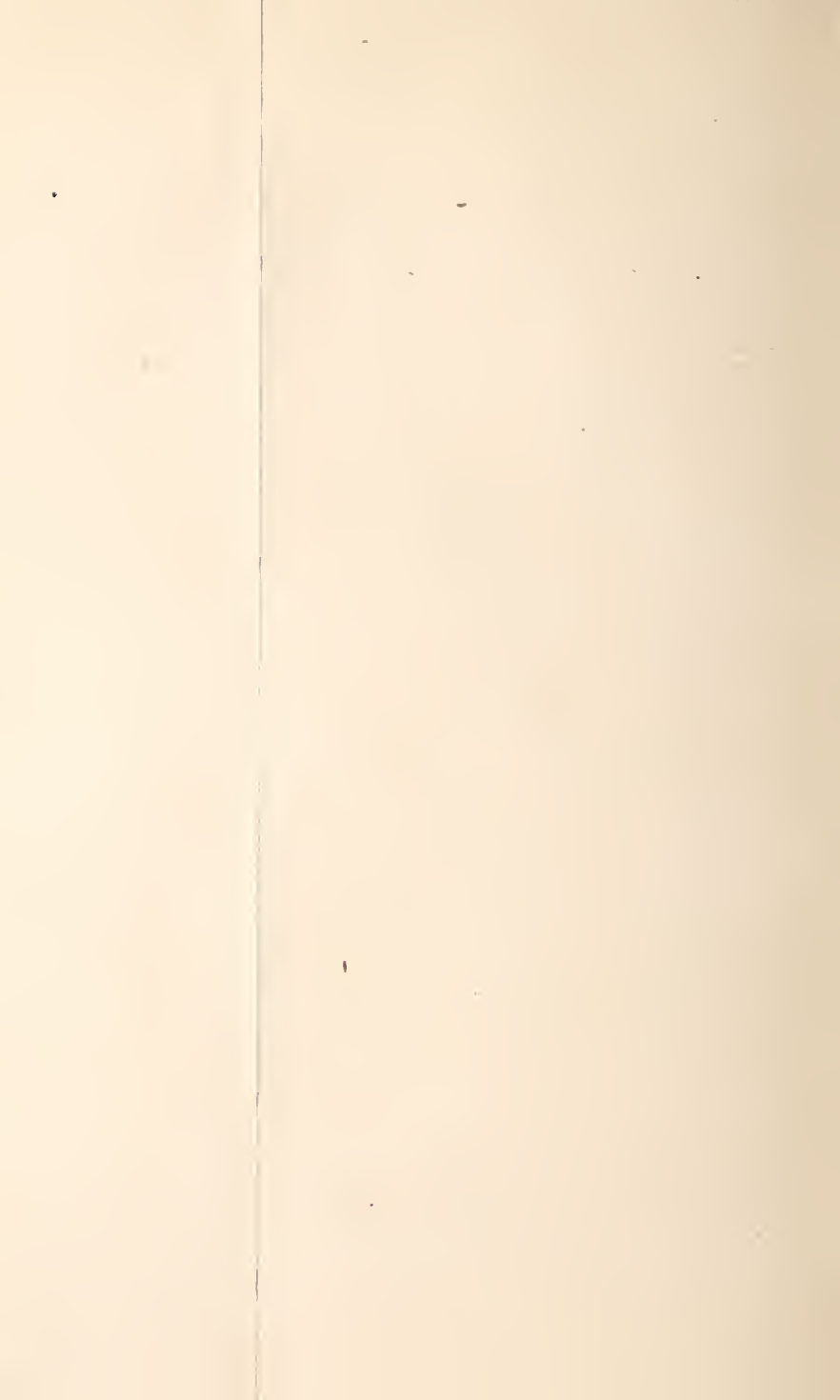
Fig 5

W. S. P.

Fossil Antelope from the Sub Himalayas. - Bennett

*Baobas lani. Puff*

731





they appear to have a considerable resemblance to our fossil. It would be highly interesting, should they be hereafter identified, and should it thus appear that the groups of grotesque Ruminants now apparently confined to the Prairies of Africa, had once a wider distribution. The assemblage in one deposit of animals differing so widely in their forms and habits, and in their adaptations to particular localities, leads irresistibly to the conclusion, that we have before us the delta of a large river, which, in one of the past configurations of our globe, must have collected in its course the various spoils of some extensive continent. No existing river, excepting perhaps the Nile, could unite in one vast cemetery the remains of every known order of terrestrial Mammalia and aquatic reptiles; of the denizens of the forest, the lake and the mud bank, mingled with those of the wide prairie and the sandy desert.

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*A Ninth Memoir on the LAW OF STORMS IN INDIA; being the Pooree and Cuttack Storms of 2nd, and the Gya and Patna Storms of 5th and 6th October, 1842. By HENRY PIDDINGTON.*

I had at first intended to include these storms in my preceding Memoir as a second part, but as, when a storm or storms in different parts of the ocean or on shore can be tolerably well traced, there may be some advantage, particularly when the tracks approach the Sandheads, in keeping the documents apart in different Memoirs and tracing them upon a separate chart. I have preferred doing so in this instance, and I have published the Madras storm first, forming the Eighth Memoir, as being of the two that which was of the highest interest, though the present are of a prior date.

On the 2nd October, the coast about Pooree and Cuttack was visited by a severe storm, which was felt as a gale at the Sandheads to the north, and to about lat.  $17\frac{1}{2}$  to the southward. In some parts of its progress it appears to have been excessively severe, and two large ships, at least the *Acasta*\* and *Imaum Shah*, if not more, foundered within these limits; besides many coasting vessels.

\* By an advertisement in the papers it would appear, that a ship of about 300 tons had sunk in eighteen feet water off Juggernath Pagoda about the time of this storm, which was supposed to be the *Acasta* from Madras.

At Calcutta, being at the time very unwell, I could not register any observation; but those of the Surveyor General's Office are given in their place. It will be seen from the documents and charts, that these storms are a remarkable instance either of two separate storms of small extent coming up together, or, which I am inclined to suppose, a large storm dividing itself into two small ones, and travelling up with great rapidity towards the coast. The grounds for these views will be as usual shewn in the summary which follows the documents and comparative table. The storms at sea were followed on the 5th and 6th of October, by severe inland storms from Gya to Patna, extending to Benares and other places; but having scarcely any documents from the stations between Cuttack and Gya, we cannot say with any certainty, that the two sets of storms were connected.

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*Abridged Log of the Ship Essex, Captain W. H. BROWN, from Madras to Calcutta, Civil time. Barometer corrected to that at the Surveyor General's Office. From the Marine Board.*

The *Essex* left Madras on the 29th September 1842, and reached lat. (by account) 16°, long. 83° 50' E. by noon on 1st October, having had variable winds.

P. M. Cloudy; 6, squally with rain, much lightning to N. W.; 8, squally, very vivid lightning from N. W. to N. E. Dense black clouds to northward; 9, wind W. N. W. wind increasing and cross sea rising; 10, increasing; midnight hard squalls with high sea from N. N. E. Barometer falling, double-reefed the topsails, high confused sea running from N. W., N. W. and N. E. very heavy rain.—8 P. M. Bar. 29.836. Ther. 82.—10 ditto, Bar. 29.766. Ther. 81—Midnight, Bar. 29.586. Ther. 80.

*Sunday, 2nd October.*—Gale increasing, very heavy rain and hard squalls, sea very high and confused, wind veering suddenly from S. W. to N. W. and back again; 6-30, a very vivid flash of lightning and sudden awful crash of thunder burst immediately over the mast heads making the ship tremble; very hard squalls 7-30. At 7 A. M. Bar. 29.436. Ther. 81.—9 ditto, Bar. 30, 29.406, Ther. 82.—Noon, Bar. 29.406. Ther. 84.—2 P. M. Bar. 29.436, Ther. 83.



Rain falling in torrents; 9-30, furl'd the fore top sail and hove the ship to, with head to N. N. Westward, wind then settled at West. Noon no rise in the mercury, secured every thing, and made snug for bad weather. Latitude account  $17^{\circ} 10'$  N., longitude  $85^{\circ} 30'$  E.; P. M. squalls very heavy, but clouds more broken. It had previously been very thick and very oppressive, wind W. N. W. At 2, the mercury which had been stationary since 10 A. M. began to rise. At 5 P. M. moderating, squalls less severe, and not continually raining as it had previously done; made a little sail and bore up to the E. N. Eastward, wind settled at W. S. W. clearing up. Night fine and starlight, with passing light squalls, made all sail, sea going down fast.—8 P. M. Bar. 29.836, midnight 29.336.

*Monday.*—Fine weather; Noon latitude  $19^{\circ} 10'$  N., longitude  $89^{\circ} 25'$ .—Barometer 29.886.



*Extract from the Log of the French Ship Lion, Captain E. BONNET.  
Reduced to civil time.*

The *Lion* left Karical on the evening of the 30th September, passed in sight of Pondicherry, and at noon 1st October was in lat.  $13^{\circ} 0'$  N., long.  $19^{\circ} 21'$  E. of Paris, ( $80^{\circ} 41'$  Greenwich.) P. M. and to midnight cloudy, an 8 knot breeze from W. N. W.

*2nd October.*—Weather and sea increasing, steering 9 knots per hour to N. E. with winds from S. W. to W. S. W. Noon latitude  $15^{\circ} 9'$  N., longitude  $83^{\circ} 01'$ . P. M. ( $85^{\circ} 21'$  Greenwich.) P. M. bad appearances, shortened sail at midnight; going 7 knots to N. E., wind S. W., less sea and wind.

*3rd October.*—Wind to noon S. S. W. At noon fine weather, very heavy sea, latitude  $17^{\circ} 20\frac{1}{2}'$ , longitude E., Paris  $85^{\circ} 21'$  ( $87^{\circ} 41'$  Greenwich). From noon 2nd, a current of 90' to the Eastward.\* P. M. fine weather to midnight; out reefs.

*4th October.*—A. M. squally but fine, a good deal of sea. At  $\frac{1}{2}$  past 9, saw a ship which we passed at 10; she had lost her foremast, but made no signals; stood on. Noon latitude  $20^{\circ} 23'$  N., sounding 80 fathoms, mud.

\* This is worth remarking, as probably the effect of the storm wave.

*Dr. CUMBERLAND, the Civil Surgeon of Pooree, has kindly obliged me with the following very clear account of this Storm, as experienced at that station:—*

We have lately had a very severe gale at Pooree, the particulars of which I subjoin. The gale commenced on the night of the 1st instant, blowing hard from North, with rain. It continued to increase during the 2nd, occasionally blowing in very heavy gusts, with rain from North. At 6 P. M. the wind which had blown from due N. shifted to E. N. E. when there was an abatement in the violence of the storm. At 6½ P. M. it re-commenced with renewed violence, accompanied with thunder and lightning. At 8 P. M. blowing very heavily from S. E. At 9 P. M. more moderate, heavy rain. At 10 P. M. furious gusts from S. S. E. At 11½ P. M. more moderate. At 12½, heavy gusts from South, thunder and lightning, then again more moderate. At 1½ A. M. of the 3rd, violent gusts from S. after which the gale abated, leaving a brisk gale from South, and towards evening S. S. W., gradually diminishing. The 4th was fine with fresh S. W. breezes. The height of the thermometer on the 2nd was 78°, lowest 76°. Quantity of rain from 8 A. M. of the 2nd to 8 A. M. of the 3rd, 5 inches and ten-tenths. The damage occasioned by this gale both at sea and in shore is immense; no less than six coasting vessels were wrecked within a few miles of Pooree, and the "*Imaum Shah*," 700 tons burthen, foundered off the coast, only four hands saved out of 100 on board. The *Nacoda* told me that he was at anchor somewhere about the Sandheads when the gale commenced from the Westward; however there is no reliance to be placed on that. The poor man lost his wife and family, and I dare say was somewhat bewildered. The town of Pooree presents a sad scene of devastation, and a great many people have been killed. To give you an idea of the violence of the storm I may mention, that it was about one-eighth more violent than that of April 1840, an account of which both the late Mr. Ewart and myself forwarded to you.\* I have had letters from Cuttack to-day, dated the 4th. There I am informed on the 2nd, they had a smart storm, only a few trees blown down, but no material injury done. Cuttack is 50 miles north of Pooree, so that it appears to have confined its ravages more to the coast.

R. B. CUMBERLAND,

*Civil Assistant Surgeon.*

*Pooree, 5th October, 1842.*

\* See Jour. As. Soc. Vol. ix, p. 1021. Third Memoir on Law of Storms in India.

DR. MINTO, *Civil Assistant Surgeon at Cuttack, obligingly sends me the following account of the gale as experienced there:—*

Being unable to take particular notes of the weather during the last few days I applied to a friend to favor me with his, and as they may be useful to you, I transmit a copy.

*1st October.*—First part heavy rain ; noon N. N. E. and N. E. *strong breeze* ; 8 P. M. increasing breeze North, fresh gale and heavy squalls of rain.

*2nd.*—First part North, fresh gale and heavy squalls from North, N. N. E. and N. E. noon increasing gale, North and N. N. E. ; 4 P. M. strong gale North, furious squalls from N. and N. E. ; midnight a rasping gale N. and N. N. E ; heavy rain.

3 A. M. a lull ; 6 A. M. a strong breeze from E. S. E. and S. E. ; increasing breeze and cloudy ; latter part moderate breeze and cloudy.

I should say the strength of the gale, which came with heavy squalls of rain, was from noon until sun-set of the 2nd. From the evening of the 1st until day-light of the 3rd, three inches of rain fell. There has little injury been done to property, considering the severity of the weather, I mean in the immediate neighbourhood of Cuttack.

A. MINTO,

*Assistant Civil Surgeon.*

*Englishman, 25th October, 1842.*

ARRIVAL.

*25th October.*—Ship *Juddah Rohoman*, Nacoda, from Muscat 30th August.

REMARKS.

The *Juddah Rohoman* driven out from the Sandheads on the 30th September in a severe gale of wind from the Eastward, lost fore and main-masts by the board, and was obliged to throw a quantity of cargo overboard, to lighten the ship. On the 2nd of October in company with a large ship of 600 tons with nothing left but her bowsprit, she made various signals, but we could not understand them, in one hour afterwards no trace of her could be seen, supposed her to have foundered, it blowing hard at the time and a tremendous sea running ; this took place in latitude 19° 11' N., longitude 87° 58' E.

*The Ship Eliza was outward bound, and put to sea from the Sandheads at the commencement of the storm. Captain McCarthy has obligingly communicated the following graphic account of it to me through Messrs. Cockerell and Co., of which I have only abridged those manœuvres and preparations which every seaman understands to be matter of course, which would not be intelligible to other readers, and which do not serve to throw any light upon our subject.*

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*Report of Capt. McCARTHY, Ship Eliza, civil time.*

30th September, 1842.—Civil time A. M. Light breeze from the southward and fine weather; at 3 A. M. hove up and made all sail down from Saugor Point, set all studding sails; at noon light winds from N. N. E. to N. N. W. and fine weather. Barometer 29.80. Thermometer 84.0. Steering down Channel, a very heavy rolling hollow swell and all possible sail set. The heavy head swell continued all the way down Channel. At 2 hours 50 minutes, Mr. Hand, Pilot, left the ship about two miles above the outer Floating Light, and went up in the steamer. Increasing breezes and cloudy, *a strong Westerly set*,\* steering S. S. E.  $\frac{1}{2}$  E.; at 7 P. M. the Light Vessel North, wind from N. N. E. to N. N. W., a heavy dark appearance from the S. E.; from sunset to 9 P. M. light winds from Northward with much, very vivid, lightning to the S. E., threatening appearance and incessant lightning; at 11 Barometer 29.78. Smart squall from S. E. with very heavy rain. The Barometer stationary as well as the Sympiesometer, heavy rain continued. At midnight fell calm, with baffling airs from Northward and Southward alternately.

1st October.—An increasing breeze from N. N. E., steering S. S. E.  $\frac{1}{2}$  E. about five knots; a turbulent cross sea on, but not high. 4 A. M. strong N. N. E. winds with squalls and incessant rain with a cross sea as above; at 6 to 7 A. M. hard squalls and drizzling rain, ship pitching heavily; at 8 A. M. squalls increased, attended with constant rain and windy appearance, reduced sail. Barometer 29.78, not fallen any since

\* These italics are mine, as this phenomenon is one to which too much attention cannot be paid.—H. P.

yesterday, and Sympiesometer 29.70. It continued steady from 8 A. M. to noon; strong N. N. E. winds with squalls and much rain, a cross turbulent sea at noon. Barometer fell suddenly to 29.68.; at 3 P. M. strong breeze from N. N. E. and rain and thick weather, wind falling light at times and freshening as suddenly again.\* Made all preparations for bad weather, and brought the ship to the wind under double reefed main topsail and foretopmast staysail; at sunset strong wind approaching to a fresh gale, with unsettled thick weather, wind lulling and freshening at times from North to N. E. with a cross, turbulent, agitated sea and constant rain. Barometer falling a little; from 6 P. M. to midnight fresh gales and hard looking weather, no rain; midnight Barometer 29.50 falling. Sympiesometer 29.42. Close reefed the main topsail and in forestaysail, hove to under main topsail close reefed, head E. S. E.

*2nd October.*—A. M. commences with strong gales, with squalls and light rain again; sea high and cross, ship easy, and not moving much, shipping no water on deck, lurching at times. Barometer fallen at 1 to 29.30. Sympiesometer 29.22. and falling; blowing a hard gale, pitching hard, and taking water on deck, increasing gale. Barometer falling fast; at 3-30 increased to a violent gale, steady at about N. N. E. with a high sea from the Southward, making it very cross, shipping a good deal of water on deck when the ship lurched. Barometer fell very suddenly since midnight from 29.30 to 28.30, and Sympiesometer 28.22, and falling still. Clued up the close reefed maintopsail, and although it was run up quick, before the men could get it well fast, it blew nearly to pieces; the wind increased suddenly to a violent storm, the drift making a clean sweep over us for several feet above the deck, the weather quarter-boat blew up to the rigging, got a rope round her to the rail. Just about 5-30 A. M. blowing a violent hurricane from about N. N. E., ship laying over three planks of her lee deck in the water; wind most terrific, the weather quarter-boat broke the davits, blew up about ten feet up the mizen rigging, and lay across and broke the planks in several places. Stove all the full water casks that were on deck and hove them overboard to ease the ship, now laboring very heavy and burying very much to leeward; masts bending and buckling with the force of

\* This is exactly the rising and falling of the wind described in the Seventh Memoir, vol. xi, p. 1000.



the wind, ship buried to leeward as high as the rail. At 6 A. M. the fore-topgallant mast broke off above the cap, and likewise the main and mizen; put an extra batten on the after-hatch with long nails, the fore upper hatchway caulked down, the ship now laying over with her lee side all buried within two planks of the hatchway; the upper part of lee bulwark swept away and upper covering board split, the gun and carriage washed over the rail, the spars on the booms and longboat all fast; but the board on the booms adrift the wind having got under the boat, broke her lashing and blew her to pieces. Barometer still falling since 6 A. M.; at present 8 A. M. Barometer 27.92 and Sympiesometer 27.78. Blowing a terrific hurricane; ship much over, the lee side of the quarter deck quite buried, and the covering rail being apparently split, did not know the extent of the damage to leeward, it being under water; masts struggling and bending much, the foremast head gave way and fore-topmast fell over the side with yards, and our foreyard came down the foremast several feet; ship not rising at all, and wishing to wear her to get the lee side up, (hurricane still as violent,) cut away the main topmast backstays to ease the ship and try to righten her, as the fore topmast going did not appear to do so, and to save the mainmast, when the main topmast broke some feet above the cap, yards, &c. going with it over the side; still the ship lay over with most of the lee side of the deck under water, and not rising cut away the mizen shrouds to ease the ship, when the mizen mast went over the side, taking away the binnacles, compasses, boats, &c. &c. overboard, and carrying away the starboard quarter gallery, poop rail, and smashing the skylight and every thing on the poop. The ship rightened a little, broke the steering wheel and wounded a man on the poop; the sea washed into the starboard after cabin, (the Captain's,) and nearly filled it, and from it to the cuddy and other cabins, and a large quantity of water got down the companion hatch abaft the cuddy before it could be secured. Since 6h. 30m. A. M. until at present at 11 A. M., it had blown a terrific hurricane. Barometer stationary at 27.89, Sympiesometer 27.78; still blowing as furiously as ever. About a little after 11 A. M. the wind suddenly lulled very much, got the hands on the poop, got tackles on the tiller, the wheel being broken, and put it up; after some time the ship wore and cleared the deck of water, the sea knocked her about the stern in wearing,

brought her to on the starboard tack ; much lightning and dark overcast weather ; heading up N. W. At a little before noon, the wind shifted in a flash of lightning suddenly to the S. S. E. from N. N. E. and blew instantly nearly as violent as it had before done, from N. N. E. Clapped the hands on the pumps, and kept at them sometime ; but they were washed away, some rice coming with the water ; ship apparently a list to starboard ; dark overcast weather, the drift washing right over the ship ten feet above the deck ; not able to look to windward. Cut away the wreck of the mizen mast, it being now to windward, but not before it had struck the rudder and shook it very much ; it struck likewise under the counter before the ship was wore round, and shook the stern frame a good deal ; threw every thing overboard that was about the decks as well as three provision casks that had washed out from under the top gallant forecastle where they were stowed, to prevent them from wounding the people ; many having had their legs cut and other bruises. Two feet and eight inches in the well, but could not tell precisely, every thing being so wet ; set to work at the pumps, a quantity of rice coming up with the water ; pumps working well and heaving a large quantity of water ; blowing very violently from S. S. E., *the lee sea coming nearly up to the pumps at times* ;\* secured the foreyard and lashed the yardarm of the mainyard down to the ring bolts in the stanchion and kept it on end, to keep it steady ; tried to get something on outside the quarter gallery, as the cabins were nearly full of water, but could not succeed ; the men were washed away ; blew a violent hurricane until about 4h. 30m. P. M. black overcast weather and lightning ; when the extreme violence of the hurricane moderated a little ; all hands at the pumps, continued at them until nearly 6 P. M. when the ship sucked. A large quantity of water in the cuddy and cabins, and some of it getting below as it washed about ; succeeded in getting the quarter gallery door barricaded with canvass and battens, which kept part of the sea out. At 6 P. M. moderating to a hard gale, and glass rising slowly from 27.92 to 28.30. Sympiesometer 28.22, both rising together. Sympiesometer moved up first. Succeeded in stopping the water from getting in, got

\* The italics are mine, this is partly a confirmation of my remarks on the danger of the lee sea in the First Memoir, vol. viii. Jour. As. Soc. p. 645.—H. P.



the water baled out of the cabin and cuddy, got some more of the wreck cut away, tiller loosened a little on the rudder head, got quite pitch dark, sent the men to rest in the cuddy. Barometer 28.50. Ship laying to, helm down, head E. N. E. to N. E., wind about S. S. E., cross turbulent agitated sea on, less water on deck, and violence of the storm moderating. From 9 to midnight strong gale and overcast weather, steady at S. S. E. Midnight ditto weather, ship rolling heavy at times, the Sympiesometer rose to 28.96, the Barometer got broke by striking against the side in one of the heavy rolls after the violence of the storm had subsided.

*3rd October.*—A. M. strong gale from S. S. E. and dark weather, but clearing away a little; ship laying to, head to Eastward, very easy and decks clear of water, great heat coming up from below. Sunrise hard gale and fair weather with passing clouds, wind S. S. E., ship laying to under bare poles, but not to the wind; clearing the wreck. Noon strong winds and fair weather. Sympiesometer 29.40. Thermometer 82°. Latitude observation 19° 46', longitude chronometer 88°. Situation by account at midnight of the 1st, when the violence of the gale commenced and lasted to 4 A. M. on the 2nd October, was latitude 18° 30' North (about) and longitude 89° 0' East. P. M. strong winds from the Southward, and cloudy weather. At 2, Sympiesometer 29.56. Thermometer 84°. Squalls at intervals and light rain, high sea on from S. E. Employed clearing wreck and getting the foreyard up, set the lee part of the mainsail, a few cloths to leeward, the rest being all blown away, to keep the ship to; the foresail nearly torn to pieces, very high sea on. Midnight strong southerly winds, passing squalls at times. Midnight ditto. Finding ourselves at so little distance from the Sandheads, and a strong southerly wind blowing and likely to continue, and not being able *yet* to keep the ship to the wind, it being S. S. E. and quite dead foul, we determined to run back, kept away N. E. by N. under clew of mainsail, going about two knots.

*4th October.*—A. M. strong breeze from S. S. E. to South, with passing light squalls, kept the ship N. E. by N.  $\frac{1}{2}$  N. to check the westerly set that always prevails outside at this time. Noon, sea subsiding gradually, moderate breeze and fair weather. Latitude by observation 20° 12' North, longitude per chronometer 87° 58'; had a strong set about W. S. W., and shortly arrived safe at Calcutta.

*Report of the Ship Emerald Isle, Capt. J. SCALES. From the Marine Board.*

On the 1st instant whilst at anchor in the Eastern Channel, the weather became unsettled with the wind at East, the squalls rising about S. E., but striking us mostly from about East. About 4 P. M. gale and sea increasing, slipped and made sail to the southward. During the night it blew fresh with an increasing sea. About 5 A. M. on the 2nd, wind about E. S. E., gale increasing with such rapidity, that I was unable to shorten sail sufficiently quick, the weather beginning to assume a most wild and threatening appearance. About 1 P. M. the wind and sea had increased to that extent, and the ship so uneasy, I thought we should have been swallowed. Thermometer was then  $82^{\circ}$  and Sympiesometer  $28\frac{3}{12}^*$ , varying not more than a couple of tenths, until about 6 P. M., when it gradually rose, and the breeze had sensibly abated. The wind had then veered to South, but the hardest part was from the S. East; it blew hard in squalls during the night with deluges of rain, but by daylight had almost subsided. The Sympiesometer then 28.40, which at Noon rose to 28.50. Thermometer  $84^{\circ}$ , the wind then gradually drew round to the S. S. W., when the weather became clear and tranquil.

J. SCALES,

*Commanding Ship Emerald Isle.*

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*Abridged Log of H. C. Steamer Tenasserim from Singapore, bound to Calcutta, reduced to civil time.*

28th September, 1842.—Noon, latitude  $14^{\circ} 22' N.$  longitude  $93^{\circ} 45' E.$  Narcondam at 1h. 30m. A. M. W. by N. (distance not stated). Fine westerly breeze. P. M. to midnight, winds variable, N. N. W. to W. 4 P. M. Preparis E. by N.  $\frac{1}{2} N.$  (no distance).

29th September.—Fresh breezes N. W. by W. to W. N. W. No observations at noon. P. M. the same weather, Lat. account  $16^{\circ} 6' N.$ , longitude  $92^{\circ} 15' E.$  10 A. M. wind North. P. M. heavy squalls occasionally from N. W. Midnight wind N. W.

30th September.—A. M. strong breeze and thick cloudy weather, with a heavy cross sea, set storm stay sails. No observations. Latitude

\* Captain S.'s Barometer was broken.

account  $17^{\circ} 24' N.$ , longitude  $91^{\circ} 28' E.$  lying to. From 2 P. M. "wind shifted\* to a gale from S. S. W." Hove to under storm staysails. 5h. 30 strong gale, ship labouring much and so till midnight.

*1st October.*—A. M. wind lulling at intervals, wind (apparently) S. S. W. till 6 A. M. when wind marked S. S. E. "At  $9\frac{1}{2}$  bore away N. W. by N. with a heavy swell." Noon, latitude observation  $18^{\circ} 2' N.$ , longitude account  $90^{\circ} 15' E.$  P. M. wind S. E. fresh breezes and rain to midnight, when by account it would appear, that she was about in latitude  $19^{\circ} 33\frac{1}{2}'$ , longitude  $89^{\circ} 28' E.$

*2nd October.*—A. M. heavy squalls and rain S. E. 6-30 "fresh gale and dark rainy weather with a heavy southerly sea." 7 P. M. hove to under storm sails. At 10.15 in 70 fathoms water. Noon latitude observation  $20^{\circ} 47' N.$ , longitude  $88^{\circ} 10' E.$  P. M. wind S. E., in 55 fathoms. Brisk gale to midnight, when fine.

*3rd October.*—A. M. wind S. E. 4 P. M. in 35 fathoms, and at 5 A. M. 80 fathoms, no ground (being on the Swatch). Noon, latitude  $20^{\circ} 56' N.$  and squally. At 0.30 P. M. saw the Pilot.

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*Extract from the Log of the ship Halifax Packet, from Calcutta, bound to England. Forwarded by the Master Attendant, Point de Galle.*

*30th September, 1842.*—At midnight the Pilot left us at the Sandheads, all possible sail set, wind N. N. E. steering S. S. E. Latitude at noon  $21^{\circ} 18' N.$ , longitude  $88^{\circ} 40' E.$  Bar. 29.60. Ther.  $82^{\circ}$ .

*1st October.*—During the afternoon of this day the wind increased, double reefed the topsails, the wind veering from N. N. E. to East. Barometer and Thermometer same as yesterday.

*2nd October.*—At 2 A. M. civil time, the Barometer had fallen to 27.90, made all snug, the slings of the foreyard gave way, got the yard and sail secured across the forecandle, it then blowing a terrific hurricane. At 4 A. M. the bowsprit gave way, carrying away the foremast near the deck, the starboard bower anchor stock, starboard gangway rail, bulwarks, split the covering board, and stove the long

\* Wind not marked, but apparently from W. N. W. when the shift took place.

boat. At  $4\frac{1}{2}$  the main topmast went over the side, carrying with it the main cap and part of the mast head; cut away as much of the wreck as possible to save the rudder and ship. The crew, although strong and numerous, very inefficient. At 5, the typhoon at the highest possible state of fury, the mizen mast went over the starboard quarter, carrying with it the boom, gaff, binnacles, compasses, broke the steering wheel, and started the upper rudder brace, also a sky-light hatch, signal chest, stancheons and every thing on the poop; the ship completely under water, yet leaking but little. About noon the wind veered to South, and became more moderate. The Barometer getting rapidly up, but a high sea; the ship rolling fearfully. Barometer at noon 28.90, at 8 P. M. 29.00'. Lat.  $19^{\circ} 26' N.$ , long.  $88^{\circ} 30' E.$

*3rd October.*—On the morning of this day cleared away the wreck, saw two ships dismasted and stern frame of a third, with the name in white letters, but could not read them, the sea high and the crew as much disabled as the ship; every thing full of water. Books, charts, clothes, nautical instruments and one chronometer all spoiled; wind S. S. W. Barometer at 4 A. M. 29.40, at noon 29.50.

*4th October.*—This day the ship rolling dreadfully, quite under water; nothing could be done but keeping her pumped out; found a great quantity of our bread in a damaged state, wind moderated from South. Barometer 29.70. Latitude  $19^{\circ} 46' N.$ , longitude  $87^{\circ} 50' E.$



*From MR. BOND, Master Attendant at Balasore, I have been favored as usual with the following able Statements of the Winds and Weather.*

I have the pleasure to forward an account of the breeze here on the 1st to the 7th October 1842, up to which time the wind was variable, with cloudy weather and rain. The Barometer only fell to 29.52, thereby indicating rain more than wind, which indeed proved correct; the sea rose above high water mark, occasioned by the wind to the Southward, and three Salt Vessels were driven ashore and two Telingahs, also three Maldivite boats foundered below Chooramoon; the people of two of them having been saved in their boats, the other people were supposed to have gone ashore near Hidgelee. No other

vessels were lost north of Point Palmyras; but to the southward of the Point numbers were driven ashore and foundered, and many lives lost. A range of hills (the Neelgherries,) stretches down from the northward in a line with Chooramoon, which place lies S. S. W. of Balasore, distant twenty miles. On the N. E. side of this range of hills the winds were weak, (a top gallant breeze only,) whilst it increased on the S. W. side of Chooramoon, and onwards to Pooree and the Chilka Lake, to a complete hurricane, for the coast was strewn with wrecks, besides several ships being completely dismantled, and some having foundered.

Oct. 1842.	Ther.	Bar.	Bar.	Bar.	Remarks.
	2 P. M.	9 A. M.	3 P. M.	5 P. M.	
1st October,	83	29.80	29.71	29.67	N. W. to N. E. rain.
2nd ditto, ..	80	29.71	29.55	29.50	} Top gallant breeze N.E., squally rain.
3rd ditto, ..	82	29.62	29.65	29.64	
4th ditto, ..	83	29.74	29.70	29.70	S. E. ditto ditto.
5th ditto, ..	84	29.68	29.70	29.69	S. E. ditto rain.
6th ditto, ..	85	29.80	29.68	29.65	S. E. to S. W. rain slight.
7th ditto, ..	85	29.80	29.80	29.77	} S.W. fairer and variable N. W. and N. E.

The logs of the Pilot and Light Vessels will be found included in the Tabular statement. The following is the only document which I have of the state of the weather at Calcutta, which is followed by such reports from inland stations as have reached me.





Meteorological Register kept at the Surveyor General's Office, Calcutta, for the Month of October, 1842.

Days of the Month.	Moon's Changes.	OBSERVATIONS MADE AT APPARENT NOON.						MAXIMUM TEMPERATURE, OBSERVED AT 2 H. 40 M.						
		Temperature.			Wind.			Temperature.			Wind.			
		Barometer.	Of the Mercury.	Of the Air.	Of an Evaporating Surface.	Direction.	Aspect of the Sky.	Barometer.	Of the Mercury.	Of the Air.	Of an Evaporating Surface.	Thermometer exposed to the Sun's rays.	Direction.	Aspect of the Sky.
Oct. 1		Inches 29.669	87.4	88.5	84.0	E. ....	Cirro Cumuli.	Inches 29.618	87.0	90.0	83.0	104.0	E. ...	Cirro Cumuli.
" 2		.622	80.0	77.5	76.0	(high) N. E.	Raining, and fresh	.597	80.5	80.0	78.0	82.5	(high) E	Nimbi.
" 3		.665	84.9	86.0	82.0	S. E. ....	Nimbi. [gale.]	.635	85.9	88.5	83.0	107.0	S. ....	Cloudy.
" 4	●	.721	86.0	87.2	82.0	S. ....	Cumulo-strati.	.665	86.1	87.2	82.0	93.0	S. ....	Cloudy partially.
" 5		.669	85.8	88.0	83.3	S. E. ....	Cumulo-strati.	.613	86.8	89.0	82.3	109.0	S. ....	Cumulo-strati.
" 6		.610	82.0	82.2	79.7	S. ....	Nimbi.	.581	83.9	85.3	81.9	100.0	S. ....	Cumuli.
" 7		.693	85.0	87.7	80.1	W. S. W. ...	Cumuli.	.670	85.2	88.9	80.9	112.0	S. W. ...	Cumuli.
" 8		.686	86.0	90.0	82.7	W. ....	Clear.	.650	86.2	90.0	82.6	111.0	W. ....	Cumuli.



Meteorological Register kept at the Surveyor General's Office, Calcutta, for the Month of October, 1842.

		OBSERVATIONS, MADE AT SUNSET.										Rain Gauges.			
		Temperature.					Wind.								
		Of the Mercury.		Of the Air.		Of an Evaporating Sur- face.		Direction.			Aspect of the Sky.		Upper.	Lower.	
		Inches	°	'	°	'	°	'	°	'	°	'	Inches	Inches	
Days of the Month.	Moon's Changes.	Barometer.	Of the Mercury.	Of the Air.	Of an Evaporating Sur- face.	Direction.	Aspect of the Sky.	Barometer.	Of the Mercury.	Of the Air.	Of an Evaporating Sur- face.	Direction.	Aspect of the Sky.	Upper.	Lower.
Oct. 1		29.600	87.4	88.7	83.2	E. ....	Cloudy.	29.608	86.0	85.7	80.2	S. E. ....	Very Cloudy.	1.34	1.37
" 2		.589	81.0	79.1	77.0	(high) E.	Nimbi.	.582	80.0	78.0	76.5	(high) E.	Nimbi.	0.54	0.59
" 3		.634	84.7	86.0	81.0	S. ....	Cloudy.	.642	83.5	84.0	80.2	S. E. ....	Nimbi.	0.05	0.08
" 4	●	.653	86.0	88.0	82.5	S. ....	Cumulo-strati.	.660	85.2	86.0	81.0	S. ....	Cirro-strati.	..	..
" 5		.605	86.0	88.0	83.0	S. ....	Cloudy partially.	.610	84.7	84.5	80.2	S. ....	Cloudy.	0.22	0.27
" 6		.577	84.1	85.2	81.8	S. ....	Cumuli.	.589	83.2	83.0	80.2	S. ....	Generally Clear.	0.25	0.31
" 7		.665	85.2	88.5	81.7	W. S. W.	Cumuli.	.670	84.5	85.5	80.3	Calm. ....	Generally Clear.	..	..
" 8		.646	85.7	89.0	81.4	W. ....	Cumuli.	.650	84.8	84.9	80.4	Calm. ....	Cirro-strati.	..	..

MINIMUM PRESSURE, OBSERVED AT 4 P. M.

MOON'S HORIZONTAL PARALLAX AT NOON.

*The Observations after Sunset are made at the Hon'ble Company's Dispensary.*

Days of the Month.	Moon's Changes.	OBSERVATIONS MADE AT 8 P. M.				OBSERVATIONS MADE AT 10 P. M.			
		Temperature.			Barometer.	Temperature.			Barometer.
		Of the Mercury.	Of the Air.	Of an Evaporating Surface.		Of the Mercury.	Of the Air.	Of an Evaporating Surface.	
Oct. 1		84.75	85.25	84.25	Inches. 29.825	84.36	85.25	81.25	84.25
" 2		82.0	81.5	80.5	.775	81.75	81.0	80.0	
" 3		83.25	84.0	83.75	.886	83.0	83.1	81.0	
" 4	●	85.0	84.0	83.75	.900	84.25	83.25	82.2	
" 5		85.0	84.25	84.0	.796	84.25	81.0	83.25	
" 6		83.0	83.5	81.5	.750	83.35	83.2	81.0	
" 7		84.25	81.0	83.5	.900	84.0	84.0	83.5	
" 8		85.5	85.0	84.75	.850	85.5	84.75	84.5	

*The following Memorandum is from my friend Wm. PEACOCK, Esq., who was, at the time of which he writes, on the river in a Boat.*

Being about 10 or 12 miles above the mouth of the Bhagruttee (about latitude  $32^{\circ} 32'$  N. longitude)  $88^{\circ} 20'$  on the 5th October, I observed in the evening the wind was from the Eastward. gradually lulling as night came on. After sunset a very heavy bank of clouds visible all along the horizon, commencing a little East of North and running round Eastward to nearly South. During the night of the 5th, the wind sprung up again, but from the North East; and it was blowing fresh from that quarter all the forenoon of the 6th till about 12 or 1 o'clock, when heavy squalls came up from the South-East, succeeding each other at intervals of half an hour, and so on till between 3 and 4 P. M. when the weather cleared a little; but it still blew fresh from South East, with an occasional shower till evening. I was by that time in a very sheltered situation, and could not well feel the weather as I did in the morning of the 6th, and during the middle of the day, all which time I was knocking about in the open river, and exposed to the full power of the storm.

Wm. PEACOCK.

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*The following note from Purulia, by Capt. HANNYNGTON, B. N. I. is the only trace I have of any storm in the line between Cuttack and Gya.*

*Purulia, 11th April, 1843.*

The fact is, that we had a brisk gale here for one day during the first week of October, and pretty full memoranda of the Barometrical changes were noted down by a friend who was then here, and who instead of at once writing them in the memorandum book, committed them to a scrap of paper, which has unfortunately been mislaid. I have searched for it long and in vain. So far as my memory serves, the gale began here on the night of Sunday the 2nd October, and blew from North veering to West, in which quarter it moderated, and ceased in the afternoon of the 3rd. Seeing it was so short, and no notice being taken of it by you, I supposed that it was of no consequence, and therefore did not send a report. You will say that nothing of the

kind can want some degree of consequence, and that the memorandum should have been sent. Very true; I will behave better next time. I have much occupation, and do not keep a daily register.

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*Lieutenant SHERWILL, B. N. I. employed on the Revenue Survey, has kindly sent me the following Note from Gya.*

We had a violent storm at this place (Gya) on the 5th October. It commenced early in the morning (sun-rise) of the 5th from the S. E. and blew with a half-gale-like strength till night-fall, when its strength increased, and it blew furiously till the morning. About 8 A. M. on the 6th, it veered round to the S. W. and blew till 12 noon, when it faded away, having lasted 30 hours, and doing some damage by blowing down trees, &c.

The storm from its commencement till close, was accompanied (with the exception of short intervals) by heavy rain; heavier than had occurred during any part or time of the rains.

No lightning or thunder during the day visible or audible; but during the night, continued peals of thunder followed in quick succession.

The whole country was flooded from the rain, tanks filled to overflowing, and in fact, the storm has proved a blessing to this part of the world.

W. S. SHERWILL.

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*From Pussewa, near Jounpore, Lat. 25° 40' N., Long. 83° 2' E., I have from V. TREGEAR, Esq. the following account of the Storm.*

I send a few notes taken during a severe storm with which we have unfortunately been visited. I hope you will be able to lay down its course by the aid of other reports, which I doubt not will be made to you. Great injury has been done to the cane crop in general, and my indigo has also suffered greatly.

*Notes during the Storm of the 5th and 6th October 1842. Pussewa, 12 miles E. of Jounpore.*

Date.	Time.	Bar.	Ther.	Wind.	Remarks.
3rd.	Noon.	29.5	...	E.	Fresh breeze, with occasional light showers.
"	6 P. M.	...	...	...	Breeze rising.
4th.	Noon.	29.4	...	E.	Strong breeze, with frequent showers; clouds in two strata, lower one driving very rapidly to W., upper moving very slowly in the same direction, occasional breaks showing the clear sky.
"	P. M.	...	...	...	Heavy rain and breeze increasing.
5th.	5. 30.	...	...	...	High wind and showers.
"	A. M.	...	...	E.	Ditto ditto.
"	Noon.	29.25	...	...	
"	P. M.	...	...	...	
"	3.	29.1	...	...	Very high wind, with rain.
"	6.	...	...	...	Ditto ditto, and heavy rain.
"	Midnight.	...	...	N. E.	Strong gale, with rain.
"	A. M.	...	...	...	
6th.	3.	29.0	...	N.	Gale increasing, with violent gusts, which was the character of the storm during the past night; many trees blown down, and innumerable branches torn off.
"	7.	...	72°	N.	Violent storm, with rain.
"	10.	29.05	...	...	Gale continuing, but sky clearing, a few minutes of sunshine. Barometer began to rise.
"	Noon.	29.1	76	N. N. W.	Gale decreasing.
"	P. M.	...	...	...	
"	1.	29.15	...	N. W.	Ditto.
"	2.	29.2	78	N. W. by W.	Ditto, strong breeze only.
"	3. 40.	29.25	...	W. N. W.	Light breeze.
"	5.	...	...	W.	Ditto, low clouds driving very fast to S. E., heavy bank from N. W. round by N. to S. E.
"	6.	...	...	W.	Heavy rain from N. W.
"	P. M.	...	...	...	
"	6. 30.	...	...	W.	Clearing up, fresh breeze.
"	8.	29.3	78	...	Cloudy, with very light rain.
"	A. M.	...	...	...	
7th	6.	29.4	80	W.	Clear, with pleasant breeze.

E. C. RAVENSHAW, *Esq., C. S., Commissioner of Revenue for the Patna District, has obliged me with the following Notes from that Station:—*

I observe there has been a heavy gale at Cuttack on the 2d instant, which extended far into the interior. As it is probably connected with a violent and continued gale experienced at this station, I enclose the very imperfect notes made by me while it lasted.

Date.	Bar. at 10½.	Ther.	Rain.	Remarks.
Oct. 2 & 3	Not marked	0	0	} Blowing fresh from East.
„ 4	29.81	84	.12	
„ 5	29.73	83	—	} Ditto, at 6 p. m. rain commenced, continued pouring all night. Gale increasing. Gale continues, trees blown down in all directions, wind shifted to the South; at 5 p. m. to the West, from which quarter until midnight it blew furiously, but with little rain. Calm. E. C. RAVENSHAW.
„ 6	29.51	81	4.50	
„ 7	29.74	79	.12	

*To LIEUT. CHAMIER, of the Ordnance Department, I am obliged for the following account of the Storm at Allahabad.*

Possibly the following hasty Memo. of a gale of wind we had here at the beginning of the month may prove useful, as a hint to other information:—

#### MEMO.

*October 1st and 2nd.*—Strong Easterly winds and clouds, with occasional showers.

*3rd.*—Ditto ditto during the day, increased after sun-set, and during the night blew a gale, towards morning (4th) moderated.

*4th.*—Much the same as yesterday, with occasional heavy gusts and showers. At 8 p. m. increased to a strong gale, wind East and E. N. E.

*5th.*—Eight o'clock a. m. gale from E. and E. N. E. very strong; 11-30, moderated, heavy showers; 4 p. m. strong wind from E.; 7, moderate; at midnight increased to a strong gale.

*6th.*—Gale continued from E. and E. N. E. till day-break, when it decreased and commenced clearing up, the wind changing to N. E., N. and finally West, in which quarter it remained nearly steady.

Between the 1st and 6th, 1.74 inches of rain fell.



## THERMOMETER.

October 1st, 10 A. M.,....	....	....	....	....	86 Fahrenheit.
"   Noon, .....	....	....	....	....	21   "
"   4 P. M., .....	....	....	....	....	93   "
"   2d, Not observed,					
"   3d, 10 A. M.,....	....	....	....	....	86   "
"   4th, Not observed.					
"   5th, 10 P. M.,....	....	....	....	....	80   "
"   Noon, .....	....	....	....	....	80   "
"   4 A. M., .....	....	....	....	....	80   "
"   6th, 10 A. M.,....	....	....	....	....	83   "
"   Noon, .....	....	....	....	....	89   "
"   4 P. M., .....	....	....	....	....	88   "

GEO. G. CHAMIER, 1st Lieut.  
Com. of Ordnance.

The following report from Agra has been sent me by Dr. Balfour, Surgeon to the Honorable the Governor of the N. W. Provinces.

*Sympiesometer and Thermometer for the first 10 days of October 1842, at Agra.*

Day of Month.	Ditto of Week.	Thermometer at 10 A. M.	Sympiesometer at 10 A. M.	Wind.	Thermometer at 4 P. M.	Sympiesometer at 4 P. M.	Wind.	Remarks.
1	S.	87½	29.13	N. E.	88½	28.94	N. E.	
2	Sun	88	·16	vble.	88	29.01	N. E.	P. M. cloudy and slight shower.
3	M.	87	·15	E.	85½	·02	Nly.	P. M. fine shower.
4	T.	86	·12	N. E.	86½	28.98	N. Ely.	Cloudy all day, fine rain in afternoon,
5	W.	85	·07	N. E.	82¼	·98	N. E.	heavy continued
6	T.	83½	·10	Ely.	85½	·96	Cm.	rain from 10½ to
7	F.	82½	·15	W.	84½	29.05	W.	4 P. M., at times cloudy.
8	S.	83	·12	W.	84	·00	N. by E.	Shower at 8 P. M.
9	Sun	83½	·11	Cm.	84½	·01	N. E.	
10	M.	...	...	...	...	...	...	Absent from the station.
11	T.	82½	·38	Cm.	84	·28	W.	

MY DEAR SIR,—The above may be interesting, as I see you have had a gale at Cuttack during the time, for which I give you a copy of my Register. Easterly winds, from my experience, are rare here in October, and rain too is unusual; the jump of the Sympiesometer on the 11th has been sustained, it never having fallen below 30 (in the morning) since.

J. BALFOUR.

I now, as in former Memoirs, give a tabular view of the Winds and Weather on different days, including in it the logs of the Pilot and Light Vessels, and shall then proceed to the concluding summary of the grounds on which I have laid down the track of the Storms.



## Tabular View of the Storms of 2d and 3d October, 1842.

Date.	Name of Places or Ships.	Winds and Weather.	Lat. N.	Long. E.	Barometer.	Simp.	Ther.	Remarks.
1st Oct. 1842.	Essex, ..	.. A. M. variable, P. M. to midnight increasing breeze, cloudy and squally W. S. W. to N. N. E. gale at midnight. ..	16.0	83.50	8, 129.536 10, 29.766 Midt. 29.586	.. ..	82 81 80	Confused sea, dense clouds to the Northward.
	Lion, ..	.. W. N. W. Cloudy and 8 knot breeze. ..	13.0	81.41	.. ..	.. ..	.. ..	Steering to the Northward and Eastward.
	At Pooree, ..	.. Gale commenced at night, blowing fresh from North.	.. ..	.. ..	.. ..	.. ..	.. ..	1st to 2d, 3 inches of rain.
	At Cuttack, ..	.. A M. heavy rain. Noon N. .. increasing to fresh gale from North. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
	Eliza, ..	.. Increasing from N. N. E. with squalls. P. M. thick weather. Midnight gale commenced. ..	Midnight 18.30	89.0	8 A. M. 29.78 Noon 29.78 3 P. M. 29.68 Midnight 29.50	29.70 .. .. .. .. 29.42	.. ..	Standing to sea to the S. S. E. 3 P. M. hove to.
	Emerald Isle,	.. Squally from East and increasing fresh. ..	.. ..	.. ..	.. ..	.. ..	.. ..	At Anchor Eastern Channel. 4 P. M. shipped and put to sea.
	Halifax Packet,	.. P. M. wind increasing N. N. E. to East. ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
<i>H. C. Pilot and Light Vessels.</i>								
	H. C. F. L. V. Hope,	To Noon increasing N. E. breeze & squalls, with rain, thunder and lightning. 4 P. M. blowing hard from Eastward. Sunset moderate gale East. 8 P. M. heavier, East. Midnight the same, E. N. E.	.. ..	.. ..	8 A. M. 29.65 Noon 29.61 8 P. M. 29.52	.. .. .. .. .. ..	82 81 82	30th September midnight stormy, Easterly breezes and threatening weather. Bar. 29.63. Ther. 84.

Date.	Name of Places or Ships.	Winds and Weather.	Lat. N.	Long. E.	Barometer.	Simp.	Ther.	Remarks.
1st Oct. 1842.	H. C. L. V. Beacon.	Stormy, Northerly breezes & cloudy, veering at 4 P. M. to E. and E. S. E. with hard squalls and heavy rain. 8 A. M. N. E. Noon E. N. E. to E. S. E. 4 P. M. E. S. E. to S. E. 8 P. M. S. E. to N. E. blowing hard. Midnight heavy gale at N. E.	21.04	88-27	.. ..	.. ..	.. ..	Very threatening weather and strong. Weterly set. 180 fms. Cable out.
	H. C. P. V. Saugor,	1-30 heavy squall from E. by S. to daylight. At noon half a gale E. to E. S. E., rain and heavy sea.	Lower Floating Light N. N. E. $\frac{3}{4}$ E. $\frac{3}{4}$ miles.		.. ..	.. ..	.. ..	Heavy sea making.
	H. C. P. V. Megna,	Wind from E. N. E. to East, latterly stormy, Easterly breezes and heavy squalls.	In 9 fms. F. L. E. by N. P. M. 14 fms. S. Channel.		.. ..	.. ..	.. ..	
	H. C. P. V. Krishna,	Light breezes N. N. E. to N. E. Middle E. N. E. to East. P. M. E. to E. by S. squally, with rain & threatening.	11 fms. Lower Light N. N. W.		29.59	.. ..	.. ..	Latterly threatening.
	H. C. P. V. Cavery,	A. M. E. S. E. fine. Noon E. N. E. to East, squally, lightning, &c.	At anchor 10 fms. F. L. N. E. by E.		.. ..	.. ..	.. ..	3 P. M. every appearance of a gale; made due preparations.
Noon.	Essex, .. ..	Increasing gale veering S. W. to N. W. 9.30 W. P. M. moderating. Midnight W. S. W.	17.10	85.30	7. 29.436	.. ..	81	
2d Oct. 1842.					9.30 29.406	.. ..	82	
					Noon 29.406	.. ..	84	
					2 P. M. 29.436	.. ..	83	
					4. 29.836	.. ..		
					Midn. 29.836	.. ..		
	Lion, .. ..	Increasing breeze S. W. to W. S. W. .. ..	15.9	85.21	.. ..	.. ..	.. ..	Bad appearance, running to the N. E. 7 to 9 knots per hour.

Date.	Name of Places or Ships.	Winds and Weather.	Lat. N.	Long. E.	Barometer.	Simp.	Ther.	Remarks.
2d Oct. 1842.	At Pooree, ..	A. M. heavy gale in gusts from due N. 6 P. M. shifted to E. N. E. 8 heavy gale S. E. 10 S. S. E. 12 South.	..	..	..	..	78° 76	Thunder and lightning after shift of wind.
	At Cuttaek, ..	Fresh gale and heavy squalls from North to N. E. Noon increasing N. & N. N. E. 4 P. M. stormy gale North, furious squall N. and N. N. E. Midnight rasping gale N. and N. N. E. ..	..	..	..	..	..	Strength of the gale from Noon to Sunset of this day.
	Eliza, ..	Strong gales and at 3-30 violent hurricane N. N. E. 5-30 About Noon shifted from N. N. E. to S. S. E. 4-30 moderated a little to hard gale to midnight, ..	..	..	1 A. M. 29.30 3.30. 28.30* 8. 27.92 11. 27.19 6 P. M. 28.30 Broken.	29.22 28.22 27.78 27.78 28.22 28.96	..	Heavy sea from the Southward at 3-30. Lightning with the shift of wind.
	Emerald Isle, ..	5 A. M. E. S. E. gale rapidly increasing. 6 P. M. S. abating.	..	..	..	1 P. M. 28.3	82	Hardest part from S. E.
	Halifax Packet, ..	2 A. M. to Noon hurricane about N. E. Noon veered to South. ..	..	88.30.	2 A. M. 27.90 5 A. M. Typhoon. Noon 28.90 8 P. M. 29.00	..	..	..
	H. C. L. V. Hope, ..	A. M. to daylight moderate gale E. N. E. to E. S. E. 8 A. M. to Noon East 4 P. M. S. E. Sunset S. E. by S. 8 P. M. to midnight S. E. gale and squalls, wind and rain throughout. ..	..	..	8 A. M. 29.52 Noon 29.42 4 P. M. 29.40 8 P. M. 29.41	.. .. .. ..	80 82 80 82	..

\* This remarkable fall is specially noted, and confirmed by the Sympiesometer.

Date.	Name of Places or Ships.	Winds and Weather.	Lat. N.	Long E.	Barometer.	Simp.	Ther.	Remarks.
2d Oct. 1842.	H. C. L. V. Beacon,	Heavy gale at E. N. E. to East 8 A. M. East to 4 P. M. Sunset E. S. E. 8 P. M. E. Midst a hurricane at E. S. E. East to E. S. E., blowing half a gale throughout. . .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	Heavy squalls and sea with passing light rain a strong <i>Westerly set</i> , dismal weather throughout.
	H. C. P. V. Saugor,	E. N. E. to E. S. E., blowing half a gale throughout. . .	Floating Light N. E. 5 miles. P. M. E. $\frac{1}{2}$ N. 7 miles. . . . .	.. .. .	.. .. .	.. .. .	.. .. .	Tremendous sea rising and frequently breaking over the <i>Vessel</i> , almost sweeping the decks, 150 fms. cable.
	H. C. P. V. Megna,	E. N. E. to E. S. E. Fresh gales with hard squalls & rain. 4.30 increasing middle hard gales, with heavy squalls E. to E. S. E. . . . .	At anchor 20 fms. . . . .	.. .. .	.. .. .	.. .. .	.. .. .	Daylight driving with 110 fms. and again with two anchors 145 and 125, fms. riding very hard.
	H. C. P. V. Krishna,	Daylight blowing hard E. to E. by S. and E. S. E. . . . . and threatening. . . . .	At anchor 11 fms. as before. . . . .	.. .. .	.. .. .	.. .. .	.. .. .	Heavy sea throughout, riding with 200 fms. cable.
	H. C. P. V. Cavery.	Blowing very hard E. to E. by S. Noon E. S. E. 8 to 10 P. M. E. S. E. 10 to 12 S. E. Midnight about S. . . . .	Floating Light N. E. by E. . . . .	.. .. .	.. .. .	.. .. .	.. .. .	Heavy sea, squalls and rain throughout.
Noon 3d Oct. 1842.	Essex, . . . . .	.. Fine. . . . .	19.10	89.25	29.886	.. .. .	.. .. .	[Eastward.
	Lion, . . . . .	.. S. S. W. fine; heavy sea. . . . .	17.20	85.21	.. .. .	.. .. .	.. .. .	From 2d current of 90' to the
	At Pooree, . . . . .	.. 1 A. M. violent gusts from South abating to brisk gale P. M. S. S. W. . . . .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	Rain 8 A. M. of 2d to 8 A. M. of 3d, 5 $\frac{1}{10}$ inches.
	At Cuttack, . . . . .	.. A. M. a lull. 6 A. M. strong breeze E. S. E. & S. E. increasing, latterly moderate. . . . .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	
	At Pooree, . . . . .	.. A. M. a lull. 6 A. M. strong breeze E. S. E. and S. E. P. M. moderating. . . . .	.. .. .	.. .. .	.. .. .	.. .. .	.. .. .	
	Eliza, . . . . .	.. A. M. strong gale S. S. E. but clearing away. Noon strong winds and fair. Midnight strong Southerly winds. . . . .	19.46	88.0	.. .. .	6 A. M. 29.40 2 P. M. 29.56	82	
								81

Date.	Name of Places or Ships.	Winds and Weather.	Lat. N.	Long. E.	Bar.	Simp.	Ther.	Remarks.
Noon 3d Oct. 1842.	Emerald Isle, .. Halifax Packet, ..	Fine, drawing to S. S. W. ... Wind S. S. W. . . . .	.. .. .. ..	.. .. .. ..	.. .. ..29.40	28.50 29.50	84	
	H. C. F. L. V. Hope,	<i>H. C. Pilot and Light Vessels.</i>						
		A. M. Heavy gale N. to S. E. to daylight moderate S. E. 8 A. M. blowing hard and lulls, a S. S. E. Noon S. clearing. Sunset heavy gusts South to midnight strong Southerly winds and fine heavy sea. . . . . Stormy gales E. S. E. to fresh gales at daylight E. S. E. to S. S. E. 8 A. M. clearing. Noon S. S. E. and fine. 4 P. M. strong S. S. E. to moderate breezes at midnight. . . . . Weather-breaking. Noon S. to S. S. E. Midnight strong Southerly breezes. . . . . 4.30 Heavy gale E. to E. S. E. Daylight E. N. E. to E. S. E. 2 P. M. wind shifted to S. and S. S. W. gale much abated at 8 P. M., when fresh breezes S. to S. S. W. . . . . Daylight strong breeze S. E., latterly S. S. E. . . . . Midnight to 2 A. M. S. S. E. to S. S. W. to 4 A. M. S. S. E. Noon S. W. by S. P. M. S. S. W. . . . .	.. .. .. ..	.. .. .. ..	8 A. M. 29.42 Noon 29.57 8 P. M. 29.65	.. .. .. .. .. ..	84 84 83	
	H. C. F. L. V. Beacon,	Station.						
	H. C. P. V. Saugor,	Fng. I. t. E to S. S. E. Midnight strong Southerly breezes.						
	H. C. P. V. Megna,	4.30 Heavy gale E. to E. S. E. Daylight E. N. E. to E. S. E. 2 P. M. wind shifted to S. and S. S. W. gale much abated at 8 P. M., when fresh breezes S. to S. S. W. . . . .						
	H. C. P. V. Krishna,	Daylight strong breeze S. E., latterly S. S. E. . . . .						Heavy sea throughout.
	H. C. P. V. Cavery,	Midnight to 2 A. M. S. S. E. to S. S. W. to 4 A. M. S. S. E. Noon S. W. by S. P. M. S. S. W. . . . .						Heavy sea and hard squalls.

Name of Places or Ships.	Winds and Weather.	Lat. N.	Long. E.	Barometer.	Simp.	Ther.	Remarks.
Noon. 4th Oct. 1842.							
Lion, .. ..	.. Squally but fine, .. ..	20.23	.. ..	.. ..	.. ..	.. ..	.. Soundings 80 fms. saw a dismasted Vessel.
At Pooree, ..	.. Fine, with fresh S. W. breezes. ..						
At Cuttack, ..	.. A. M. increasing North, N. N. E. to N. E. 4 P. M. strong gale Northerly; furious squalls N. and N. E. Midnight rasping gale N. and N. N. E.						
Eliza, .. ..	.. Strong breeze S. S. E. to South, subsiding gradually.	20.12	87.58	.. ..	.. ..	.. ..	.. Strong set W. S. W.
<i>H. C. Pilot and Light Vessels.</i>							
H. C. F. L. V. Hope,	Strong Southerly and S. S. E. breezes and unsettled, latterly fine.	.. ..	.. ..	8 A. M. 29.72 Noon 29.68 8 P. M. 29.66	.. ..	82 85 83	
H. C. F. L. V. Beacon,	Southerly and hazy weather.						
H. C. P. V. Sangor,*	S. S. E. to S. and fine.						
H. C. P. V. Megna,*	Pleasant breezes S. S. W. to S. .. ..						
H. C. P. V. Krishna,	Pleasant breezes S. S. W. to S. .. ..						
H. C. P. V. Cavery,	Fine S. S. E. to South. .. ..						

NOTE.—In replying to some Queries, Mr. Branch Pilot Ceams, H. C. P. V. Sangor obliged me with the following: *the italics are mine.*  
 The last gale was attended with few of the general signs that generally appear in these Latitudes. On the 30th of September, the weather had a fine appearance, as if the monsoon was about to set in; we had a nice N. E. breeze. 30th at night it grew cloudy and heavy rainy appearance to the Eastward and S. E. Towards midnight these clouds assumed the most singular appearance, by which I mean, that it lightened like the flash of a gun (no report of thunder,) and then spread in thin sheet lightning along the whole horizon from about E. by N. to S. E. It had so singular an appearance in the clouds, that I remarked it to several Officers on board at the time, and the universal opinion was that they had had weather to the Eastward; but that it would not reach us, or only in the shape of rain. On the 1st October, at 1 A. M. we had a smart squall at E. S. E. with thunder, lightning and very heavy rain. At day light the weather did not look at all suspicious. At this time there was not any set, but a long heavy swell rolling in from the S. E. as if it was blowing hard in that quarter. As the day advanced, so the wind increased in squalls, *the set increased also to about three knots to the W. N. W. on the flood, and about W. S. W. on the ebb.*  
 2d October, with the ebb the sea rose to a tremendous height, as you will see by the sufferings of the Saugor in her Log.  
 3d. Sea abating very little till we got to the Eastward into deeper water.  
 4th. All over; fine serene sky with light S. W. winds, and light showers of rain at intervals  
 Our Barometer was very high 29.30, to 29.20, the whole of the gale.  
 4th November, 1842.

*In reply to some enquiries, Mr. Branch Pilot SHARLING favours me with the following Note relative to the Westerly set which prevails in these Gales.*

The reason that the rate of current was left out in the logs, is, that I thought it would be of no use, but as you wish for it, the set run to W. N. W. on the flood, and on the ebb to W. S. W. from 3 to 3½ knots.

The “*Megna*” has no Barometer on board.

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### SUMMARY.

*I now proceed to state the grounds on which I have laid down the track assigned to these Storms on the Chart.*

*On the 1st October.*—Commencing from the Southward, we find by our tables that the *Lion* in 13° N. had nothing but a strong W. S. W. monsoon, but the *Essex* in 16° N., longitude 83° 50' E. at noon had a falling Barometer from 29.836 to 29.586 at midnight with the wind increasing to a N. N. E. gale at that time. At Pooree and Cuttack the storm commences also “at night” on the 1st, with strong breeze from the North, and the *Eliza* standing to sea, was at midnight in 18° 30'\* N., longitude 89° 0' E. with her gale commencing also at N. N. E.

Of these data, the *Lion's* breeze was doubtless the monsoon, and the variable squalls of the *Essex* from W. S. W. to N. N. E. at midnight, the first effects of the storms, which as the ship was only 80 miles from the high land of Vizagapatam and the ranges of hills close to and at the back of that part, were probably deflected to a N. N. E. instead of

\* I take this latitude as set down, but it seems to me at least 20 miles too far to the Southward, for the *Eliza* on 30th September, at 7 p. m. had the Light Vessel bearing North, let us say at most 15 miles. She had then to midnight light baffling airs from North to South alternately, when she could not have made more than 10 miles more of Southing, or 25 miles from the Light Vessel in all. On the 1st, she had an increasing breeze of about 5 knots to 3 p. m. when she hove to, calling this 15 hours' run and at 6 knots it is but 90 miles, in all 115 miles. From 3 p. m. to midnight she was hove to, and allowing her to have made 2 miles per hour of Southing, or say 18 miles, this is but 133 miles in all, and part of it on a S. S. E. course. Now from the outer Light Vessel in lat. 21° 04' to Lat. 18° 30' there is a difference of 154 miles of latitude; while as above, we can make at the most but 133. I think this must have been an error of the copyist, but have taken it as set down, being always unwilling to *assume* errors in documents, unless they are evidently against common sense.



a N. N. W. gale, as the circles of them if extended to her position would require, as shewn by the arrow-line across the track of the *Essex*.

Captain McCarthy of the *Eliza* states, as before said, his gale to have "begun" at midnight from the N. N. E. in latitude *about*  $18^{\circ} 30'$  N., longitude  $89^{\circ} 0'$  E., its centre then must have borne about E. S. E. from him, at what distance we cannot exactly say; but I have taken it at 100 miles by projecting his subsequent drift, (as marked on the chart,) to Noon, when he had the centre of the storm passing him, and the shift of wind to S. S. E., and I have allowed also on the same grounds, that from midnight 1st October to Noon 2nd, the track of the storm was due West. This would place the centre of it at Noon on the 2d in latitude  $17^{\circ} 50'$  N., longitude  $88^{\circ} 40'$  E., as I have marked it; and this position being about on the meridian of the Light Vessels and Pilot station, gives them the Easterly winds and weather which they really had, being on the outskirts of a storm passing their meridian. I have also, it will be seen, marked the supposed place of the centre of this storm at midnight between the 1st and 2nd, and I need not I hope repeat here, that the whole track might have been a curve, or a succession of curves, for any thing we yet know, and that the strait lines are merely used to connect conveniently one point with another, and guide the eye.

But having thus marked the centre of the *Eliza's* hurricane at Noon on the 2nd, and we cannot well be far wrong in this, unless as before stated, there is any error in her latitude, we find that in the report from Pooree the Northerly gale which had blown there, increasing in strength from the night of the 1st, *shifted* at 6 P. M. to E. N. E., shewing that a centre of some rotatory storm had passed close to the station, or rather that the station was close to the verge of its calm space if there was one; since the gale abated in violence for about half an hour, and then blew with renewed strength, veering to the S. E. by 8 P. M., &c.

Now from the spot where we have marked the centre of the *Eliza's* hurricane to Pooree is a distance of 208 miles, and as the *Eliza* had her shift at Noon, and that of Pooree took place at 6 P. M., the interval of time is only 6 hours, during which, *if it was the same storm*, it must therefore have travelled at the rate of 39 miles an hour. This is a much higher rate than any we have yet found in the Eastern seas,

or indeed in any part of the world; the highest rate supposed being I think 24 miles per hour in the Eastern seas, which I have inferred (6th Memoir, p. 699, vol. xi. of *Journal of the Asiatic Society*,) may have been the rate of the *Magicienne* and *St. Paul's* hurricane in the China sea, and 30 miles per hour assigned by Mr. Redfield, as that of the Atlantic storm delineated as Track No. VIII, in his Storm chart of 1835. Both these are much below this rate of 39 miles per hour, but we have good proof here, that it did occur, for the time must be correct, and the *Eliza's* position cannot be very far wrong, as to distance from Pooree.

Assuming then this rate for the present as one tolerably well ascertained, the reader will notice, that I have marked on the chart a track parallel to the former one, which starting from the supposed place of the centre of the storm at midnight 1st to 2d October, gives another centre at Noon of the 2d, and terminates at Cuttack. This marks the supposed place of the centre of the *Halifax Packet* and *Emerald Isle's* storm, which cannot, I take it, have been the same as that of the *Eliza*.

Before going into the examination of this question, however, I would request attention to the log and track of the *Tenasserim Steamer*.

This vessel was steering up from the S. Westward, passing Cape Negrais at about 120 miles to the Westward, and we find that on the 29th, she had the winds squally and variable from W. N. W. to N. W., and even North, when in about the latitude of the Cape, and these N. W. breezes with thick cloudy weather and a heavy cross sea continued till Noon on the 30th, *as if* she was skirting the S. Western quadrant of a storm forming between her and the Coast of Arracan, a supposition strengthened by the fact, that at Kyook Phyoo, which is only 190 miles to the N. E. of her track on these days, the winds were at S. E. as they ought to be if a circular motion existed or was forming. The weather, however, which was fine at Kyook Phyoo, was not decidedly a gale with the *Tenasserim* till the 30th, so we cannot on such slender grounds say, that any vortex really was formed; but *if there was so*, and if it had remained nearly stationary for the 29th and 30th, the winds and weather experienced by this vessel were such as it would produce. Is this really an instance of the stationary formation of a storm?

About noon on the 30th, we find that the *Tenasserim* then in latitude  $17^{\circ} 24'$ , longitude  $91^{\circ} 28'$ , had had the weather severe enough from the N. Westward to be lying to from 2 A. M., and that the wind then *shifted* to a gale from the S. S. W., which kept her under storm stay sails for the rest of the 24 hours. This shift, again, is what should occur, if we suppose, as before, a vortex forming to the N. E. of her track on the preceding days, and then suddenly moving on to the W. N. W., its centre passing near to the Northward of her position, for such conditions could give exactly a shift from N. W. to S. S. W. I have marked two small circles on the charts to guide the eye in considering this supposition, which I merely make in the absence of better data to regulate our views. I need not again repeat that storms must be *somewhere* and *somehow*, and the faintest light thrown on the phenomenon of their beginnings is of importance.\*

We may perhaps assume this place close to the *Tenasserim* at Noon on the 30th, to have been the centre of the nascent storm on that day, and that while the vessel was drifting to the Northward with a S. S. Westerly gale, the storm was passing slowly to the Westward. This would gradually bring the wind for her to the S. S. E. as she got upon the N. E. quadrant of the storm, and so she, in effect, had it by 6 A. M. the morning of the 1st October, when she bore away to the N. W. by N., and running always on the N. E. quadrants of the two storms, had heavy S. Easterly breezes with a heavy Southerly sea to the Sand-heads. I regret much that this vessel's log is in some respects imperfect, and above all, that though a Government Steamer, she had apparently neither Barometer nor Sympiesometer on board! for no observations of either are given. Observations of good instruments in her position would have been invaluable.

We should not forget to take into account in weighing all this, that Cape Negrais is a notorious neighbourhood for variable winds and shifting storms and gales, and that the *Tenasserim's* weather *may* have been mere local variations of the monsoon, and that thus the

\* I have supposed here and in former papers a circular storm forming and *then* moving forward, *i. e.* remaining stationary, or nearly so, at first. We do not know if the dust-whirlwinds, so common in hot climates, and water spouts are generated by the same causes, and subject to the same laws, but both these phenomena certainly do what I have here supposed the storm (or storms) to do, that is, many of them are stationary or nearly so while forming, and then to use Bruce's words "stalk forward."

storms may have been generated 24 hours or more after she had crossed those parts of the Bay where our first circles are struck, and I have thus left the large one, which depends on the calculations derived from the *Eliza's* log, that the reader may weigh the probabilities between the two suppositions, which are, the one that between the 29th and 2nd of October, or during three days, the storm was forming and slowly moving on ; and the other, that it formed and moved up as far between noon of the 1st and noon of the 2nd, as between noon of the 2nd and the time of the shift at Pooree, or at a rate approaching to such a velocity ; which would then be the last supposed case of the storms having really crossed this spot twenty-four or more hours after the *Tenasserim* had done so.

We now return to the consideration of the Northernmost of the two tracks which I have laid down, or that of the *Emerald Isle* and *Halifax Packet's* storm.

The *Halifax Packet* was by her log at noon on the 30th in lat.  $21^{\circ} 18'$  long.  $88^{\circ} 40'$  which I have marked ; but there is no datum of any sort to show where she was at noon on the 1st, and I have thus laid down her place on the 2d only, when the hurricane having dismasted her had passed on, leaving the wind at South with her at noon.

The wind is not marked during the ten hours from midnight ; viz. from 2 A. M., when the Barometer had fallen to 27.90, to noon ; but as it was veering from N. N. E. to a gale at East on the preceding day, we may take it to have been in its highest fury, veering from E. S. E. to S. E., and eventually to South, as it passed on ; which agrees, as will be seen with her track, as her position between 2 A. M. and noon should lie a little to the S. E. of where it is *at noon*, as she must have been drifting to the N. West, both with the wind and with the storm wave.

The *Emerald Isle's* log describes a very rapidly approaching storm, of which, says Capt. Scales, " the squalls rose in the S. E. quarter, but struck us about East." This is an exact description of a circular storm travelling upon a track to pass to the Southward of the vessel, and perhaps, if we may use the expression, " throwing off " squalls from its periphery. By 5 A. M. on the 2d, the wind was about E. S. E., " increasing with fearful rapidity, blowing heaviest from S. E." which

in fact was the time at which he was nearest to the centre, and ending, as it should do, at South when it had passed on. At Cuttack they had by noon on the 2d an increasing gale North and N. N. E. ; by 4 P. M. strong gale North,\* with furious squalls, and this continuing with little variations till 3 A. M. of the 3d, when a lull took place, followed by a change to E S. E. and S. E. The strength of the gale, says Dr. Minto, was from noon till sun-set of the 2d, while it was moderating with the ships as before remarked.

Having thus described, briefly, the weather experienced on these two tracks, it may be useful to shew by a comparative table, that they *could not* be the same storm ; for at first sight, one is inclined to take them as such, and the fact of two severe hurricanes at once, of small diameters travelling with great rapidity on nearly *parallel* lines is a new acquisition to our storm knowledge, and will serve perhaps not only in future to explain many phænomena which are not now well understood, but to guide the perplexed seaman with comparative safety, as I shall in the sequel shew. It is evident, however, that our first care is to prove, that the phænomena about which we reason did really occur. We have already shewn this, and I think with a tolerable degree of certainty ; but the negative proof will also greatly assist our views. Not forgetting my remarks on the *Eliza's* position as possibly twenty miles too far to the South, let us now see how the ships *Eliza*, *Halifax Packet*, and *Emerald Isle*, were situated during their storms ; what were the winds and weather they had ; and what were those that they *ought* to have had if they were all in the same storm ; and to the ships we will also add the winds and weather at Cuttack and Pooree, beginning from midnight between the 1st and 2nd October, which is the earliest time at which it was felt by the *Eliza*.

The *Eliza* at this time was about in latitude 18° 30', longitude 89°, and the storm had then fully begun with her from the N. N. E.

Now if all the Ships were in one storm,—

	Should have had the wind about	But had it about
The <i>Halifax Packet</i> bearing from the <i>Eliza</i> about N. N. W., distance 40 miles, . . . . .	N. E. by N.	E. S. E.

\* While it was veering to South, and at South, with the *Emerald Isle* and *Halifax Packet*, moderating from S. S. E. with the *Eliza*, and shifting at 6 P. M. at Pooree!



	Should have had the wind about	But had it about
The <i>Emerald Isle</i> bearing from the <i>Eliza</i> about N. N. W. 130 miles, }	N. E. by N.	E. by S.
*At Pooree, distance 200 miles, }	N. N. E.	North.
E. N. E. from the <i>Eliza</i> , . . . . . }		
*At Cuttack, distance 210 miles, }	N. E. by N.	North.
N. E. by E. from the <i>Eliza</i> , . . . . . }		

At Noon on the 2d, or 12 hours later, we find that the centre of a storm had just passed the *Eliza*, which vessel was then about in latitude  $17^{\circ} 45' N.$ , longitude  $88^{\circ} 48' E.$  Now at this time, the *Eliza* had the wind at S. S. E. blowing a hurricane.

And the other ships, if the storm were the same, should have had the winds as follows:—

	Should have had the wind about	But had it about
<i>Halifax Packet</i> bearing from the <i>Eliza</i> North a little Westerly, 105 miles, . . . . . }	Due East full hurricane.	South. hurricane abating.
<i>Emerald Isle</i> bearing from the <i>Eliza</i> NbW. 145 miles, . . . . . }	East full hurricane.	S. E. full hurricane.
At Pooree bearing from the <i>Eliza</i> about N. W. miles, . . . . . }	N. E.	North.
At Cuttack bearing from the <i>Eliza</i> about NWbN. miles, . . . . . }	NEbE.	NbE.

These two statements will, I think, sufficiently demonstrate, that the storms were not the same; and it will be seen on examination, that the supposition of *two* storms explains all the anomalies satisfactorily.

A few words more on this subject will, however, I think dissipate any doubts. I have already remarked, page 801-802, on the rate at which the *Eliza's* storm travelled to Pooree from the undoubted station of its centre at noon of the 2nd.

Now as the shift of wind from North to E. S. E. took place, as we have seen, at Pooree at 6 P. M. of the 2nd, we should naturally look to find that, if the storms were the same, the wind at Cuttack, which is fifty miles to the North of it, veered also in such a way as to coincide with this change; or at all events, (as it was on shore,) *nearly* so. But we find on the contrary, that this did *not* take place at all; and that at

\* These two stations and the ship *Emerald Isle*, may be considered as not at this time within the limits of the storm.

Cuttack it was 6 hours later, or A. M. of the 3rd that they had a lull and the wind veering subsequently from N. and N. N. E. at midnight of the 2nd, to S. E. at 6 A. M. on the 3rd.

The supposition then here is, that as 39 miles per hour is so very high a rate of travelling, this Cuttack storm was that of the *Eliza*, of which the rate of travelling would then be reduced to 18.3 miles per hour, the distance from the place of the centre of the *Eliza's* storm on the 2nd to Cuttack being 220 miles, and the time from Noon 2nd to A. M. 3rd, say 12 hours.

But if we look at the Charts, we shall see that, had it been the case that this Cuttack storm was the same hurricane, it must have passed within a short distance of the *Emerald Isle*, (50 miles, if we have rightly estimated her position,) and still closer to the *Halifax Packet*, and that it must have been, taking it to have moved through equal spaces in equal times, nearest to the *Emerald Isle*, at about 7 P. M. of the 2nd, when she should consequently have had the hurricane in full force. This, however, is *not* the case, for by her log it is plain, that the hardest part of the gale was *over* by 6 P. M., when the wind had veered to South; whereas on our supposition, it would have been a furious hurricane at S. E., and the same, with a little variation as to time holds good for the *Halifax Packet's* storm. These vessels' logs then will not admit of our considering the Cuttack storm as the principal, or the only one, and there is moreover another obstacle to our so doing; viz. that while the Pooree storm, which in fury is described by Dr. Cumberland, who saw both, as one-eighth more violent than that of 1840,\* seems, to use a familiar word, "naturally" that of the *Eliza*; that of Cuttack was but a smart gale blowing down a few trees. As to the diameters of these storms, Mr. Redfield remarks, that his storm track No. VIII, of 1835, was probably not more than 100 miles in diameter, and the Coringa hurricane of 1839 certainly contracted to about 150 miles in diameter, while it increased in fury. It will then be asked, "As what we are to consider this Cuttack storm?" I should say decidedly, that as shewn in my Seventh Memoir, it is another of those cases in which a violent hurricane coming up from seaward, with a strong monsoon blowing nearly at right angles to its track† divides

\* See Third Memoir, Vol. ix p. 1021 and 1022, Journal of the Asiatic Society.

† Which we see by the logs of the *Essex* and *Lion* was the case.



into smaller storms, and no doubt the various repulsions to which a storm travelling at this high rate must have been subjected from the effects of the high land may have contributed to this effect, and that the Cuttack storm, like that of Midnapore in 1842, was a separate storm from that of Pooree, and I have thus marked it—the reader will judge if with sufficient warrant. The diminution of force may be accounted for partly, I think, by the vicinity of the Balasore Hills to Cuttack breaking up by their resistance the Northern half of it,\* and partly from the interference of the two storms as they approached the land. The extreme suddenness of their approach, and severity of their effects while they lasted, sufficiently account for the dreadful losses to which I have alluded. It might also be made an additional argument for the uses of, and attention to Simpiesometers and Barometers. We have no traces of these storms inland to the Southward or South Westward in the Goomsoor country, where are situated the wild tribes of Khoonds, and to the Northward and North Westward, where the country between Sumbulpore and Balasore is almost as little known.† For these parts then our knowledge ends hereabouts.

The next trace we have of any storm inland is at Purulia, and here again the question arises, if this was either the Cuttack or Pooree storms, or an independent vortex. The distance from Cuttack to Purulia is in a direct line, measured on the Post Office map 240 miles, and the bearing NbE., and from Pooree 290 miles. The change of wind took place at Pooree, as we have seen, at about 6 P. M. of the 2d, and at Cuttack about 6 A. M. on the 3d. The abatement of the Purulia storm took place also in the afternoon at Purulia, so that as far as we can ascertain from this Memorandum, we may take the centre of the storm, which if it was a rotatory one, passed to the Eastward of the station, to have been nearest the station at 10 A. M. on the 3rd. Now from 6 P. M. of the 2nd to 10 A. M. of the 3rd, is 16 hours of *time* between Pooree and Purulia, and from 6 A. M. of the

\* See Mr. Bond's report from Balasore.

† The European reader unacquainted with India, will be surprised to hear this of districts only 200 and 300 miles from the metropolis of British India; but it is a fact that the very *names* of some of the Khoond tribes in Goomsoor have only become known to us since the war of 1836! and that there are still thereabouts sects and tribes of which we know indeed the names, but nothing more!

3rd to 10 A. M. of the same day, is 4 hours of *time* between Cuttack and Purulia. The first interval, of 16 hours, with the distance 290 miles, gives about 19 miles an hour for the rate of travelling; and the second interval of 4 hours with 250 miles of distance, gives 62 miles an hour! It seems then, that as far as time and distance go, taking into account the retardation which sea storms experience when they reach the land, it is *more* probable, or rather it is *quite possible*, that the Purulia gale may have been the Pooree hurricane, and that there is no possibility or probability that the Cuttack storm was so, for we know of no rate approaching to 62 miles per hour. All this is, however, but vague and unsatisfactory, but I am unwilling to leave any thing unexamined. We have seen so frequently instances of storms either forcing their way far inland, or being apparently lifted up by high lands and renewing themselves again at considerable distances, that we can only venture to state and weigh the probabilities without pronouncing dogmatically upon the connexion or non-connexion of the various storms when they appear to have some relationship. There are, however, two more circumstances to be stated, which must not be omitted, the one is that the retardation is in favour of the probability, that the storms were the same; and the other, that we may easily suppose the Pooree storm to have been turned off to the Northward by the ranges of hills behind that station. Mr. Bond's report from Balasore it will be seen distinctly points out the spur of the Balasore Neelghiris at Choramou, as the dividing line between the heavy storm at Pooree and the breeze at Balasore, Choramou being about 100 miles N. W. of Pooree and 60 N. W. of Cuttack, with the great valley of the Mahanuddee river between them; and vallies seem certainly to influence in various ways the tracks of storms.

We have next to attend to the reports from the various stations to the Northward and Westward of Purulia; viz. Gya, Patna, Pussewa and Allahabad, at which it is clear, that they had parts of, and at Patna the centre of a rotatory storm passing on the 6th and 7th. The first question which naturally occurs is again the same which we have already discussed, "*Was this the same storm as that at Pooree or a different one?*" I find it difficult to pronounce whether it was or was not, from the absence of documents by which it might be traced between Pooree and Gya. At Purulia indeed, there was cer-

tainly as we have seen a storm, and this apparently part of a rotatory one, and possibly that of Pooree, if it travelled 19 miles an hour. We have, as before said, no other intervening documents, so we are compelled to suppose either that the Pooree storm was, as clearly shewn in the case of the Calcutta storm of June,\* lifted up by the ranges of hills, and did not descend again till it reached Purulia and Gya; or else it was a new storm, perhaps generated about Purulia, and travelling North and North-westerly. I have so marked it on the chart, but merely for the sake of connection, and by no means as affirming what it was; for the Purulia gale might have been quite an independent one. Beginning then at Gya, it will be found, that this place bears about N. by W. from Pooree, distance 390 miles. Now the centre of the Pooree storm passed that place at 6 P. M. of the 2nd October, and the centre of the Gya storm we may take to have passed that station at 6 A. M. on the 5th. From 6 P. M. of the 2nd to 6 A. M. of the 5th are 60 hours, which for a distance of 390 miles, gives 6.5 miles an hour, while the rate of the Pooree storm we find to have been 36 miles per hour at sea, and 19 miles on shore, which is a second retardation of rate so far beyond what we have hitherto seen, that it is much in favour of its being an independent storm. The track from Pooree to Gya it may be remarked, is however, analogous to those of the Calcutta storms of June 1842. Leaving out the strong S. Easterly breeze experienced by Mr. Peacock on the Bhagiretty, as, at most, a distant effect of some of these storms, we may commence on the 5th October, where we find that

- At Gya, there was, . . . . . { From 6 A. M. gale from S. E., furious at midnight, and lasting till 8 A. M. on the 6th.
- At Patna, . . . . . { Falling Barometer, rain and increasing gale from the East till midnight.
- At Pussewa, latitude 25° 41', longitude 83° 03' distant about 168' N. W. by W. of Gya, . . . . . { Barometer sunk 0.25 from the 3rd instant. P. M. high wind East and N. E. increasing to gale, with violent gusts at North by daylight of 6th.
- At Allahabad, latitude 25° 27', longitude 81° 50' E., . . . { By 8 P. M. on 4th, strong gusts and showers had increased to a gale East and E. N. E. At 8 A. M. 5th very strong, moderating and increasing again at midnight to a strong gale.

\* See Seventh Memoir, Jour. As. Soc. Vol. xi, p. 1089.

Agra, ..... } Unusual winds from the Eastward  
and Simpiesometer falling.

## ON THE 6TH OCTOBER.

At Gya, ..... } At 8 A. M. S. E. gale *veering*\* to  
S. W. and blowing till noon, when it  
moderated.

At Patna, ... } From midnight furious gale, blowing  
down trees. Noon Barometer had fallen  
from 29.81 on the 4th to 29.51, wind  
shifted to South, time not marked. At  
5 P. M. to the West, blowing furiously  
till midnight.

At Pussewa, ..... } Gale from North, violent gusts to  
Noon, when N. N. W. and Barometer  
beginning to rise, veering to N. W. and  
finally to West; but only a strong  
breeze by 3 P. M.

At Allahabad, ..... } Gale continuing from East and E.  
N. E. till daylight, when moderating  
and veering to N. E. North, and  
finally West.

Allowing for the numerous disturbing causes which inland storms meet with, and for the general nature of the observations, it will be found that the circles I have marked on the chart shew the variations which are described in the winds as the storm travelled up to the North and by East, (the first instance of a storm track, trending to the *East* of the meridian,) from the neighbourhood of Gya, and passing not far from Patna and between it and Pussewa; though it might perhaps have been better placed about half way between both? But the word "shift," used in Mr. Ravenshaw's report from Patna, inclines me to believe, that the change was, if not a sudden, a very rapid one, whereas that at Pussewa was evidently a *veering* from North at 7 A. M. to N. N. W. at Noon, and N. W. at 1 P. M. or 4 points in 6 hours. Beyond Patna we have no farther trace of the storm.

I should thus be inclined to take this storm as quite a separate one. I have already remarked on and discussed the rates of travelling of the various storms, and no farther observations occur to me, except to remark on the very high rates of travelling, which the *Eliza's* log and

\* "Veering" and not "shifting;" and the careful use of these words is important; for the *sudden* shift, particularly with an interval of calm, indicates the passage of the central portion of a gale; the "veering" that it has passed *near* the spot.

Pooree report furnish us, which are as yet new in the Eastern Seas, and the remarkable confirmation of the fact of the dangerous Westerly set of 3 or 4 miles per hour prevailing at the Sand Heads, even when as in this case, the nearest centre of the nearest storm was at least 100 miles distant from the Light Vessels!

P.S.—I obtain, just as this sheet goes to press, two more documents. The abstract of the log of the Ship *Seringapatam*, Capt. Robertson, and the notes taken at Purulia, which Capt. Hannington had mislaid. The memorandum from the *Seringapatam* is as follows; she was bound to Madras:—

1st October, 1842.—Nautical Time.

Course and Distance	Lat. and Long. Noon	Bar.	Ther.
S. S. W.	19° 26' N. 86° 36' E.	29.60	83°

Wind and weather variable S. W., N. W., and S. E., with thunder and rain.

2nd Oct.—S. S. W. 180. | 17° 39'    84° 32' | 29.50 83°

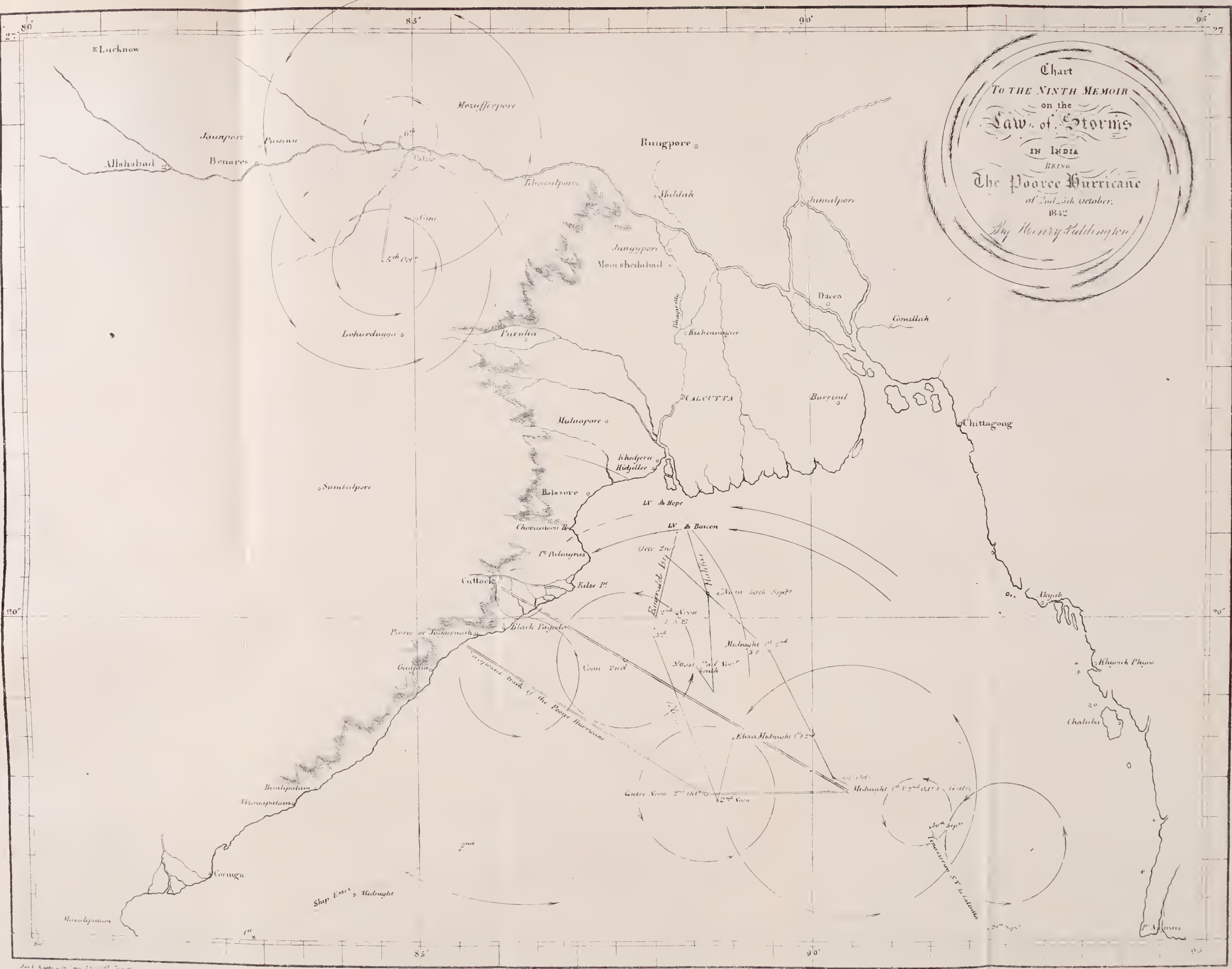
N. W. strong breeze throughout.

This position it will be seen places the *Seringapatam* on nearly the same meridian as the *Essex*, but about 30 miles further to the Northward at Noon on the 2nd, and about 15 miles nearer to the track of the centre of the Pooree hurricane, as I have laid it down. Her Barometer is accordingly lower, and she had the N. W. breeze, (it would have been a *gale* had she been a degree less advanced on her track,) “a steady” one throughout, which is what *ought* to have occurred with her.

The following is the tabular statement of the storm at Purulia, as sent me by Capt. Hannington:—



Chart  
 TO THE NINTH MEMOIR  
 on the  
**Law of Storms**  
 IN INDIA  
 BEING  
**The Pooree Hurricane**  
 of 2nd 5th October,  
 1842  
 By Henry Piddington



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*Meteorological Register kept at Purulia, during the Storm of the 2nd and 3rd of October, 1843, by Captain G. C. ARMSTRONG,  
49th Native Infantry.*

Date.	Hour.	Barometer at Purulia.	Barometer reduced to the level of Calcutta.	Thermometer.		Direction of wind.	REMARKS.
				Attached.	Detached.		
2nd October,	8 P. M.	28.94	29.62	80½	78	E.	Strong breeze, increasing. Scud low, and driving fast.
Ditto, . . . . .	10 P. M.	"	"	"	"	E.b.S.	Gusty, with alternate lulls.
Ditto, . . . . .	11 P. M.	28.90	29.58	"	"	"	Fresh gale, a little rain.
3rd October,	2 A. M.	"	"	"	"	"	Ditto, more continuous, with occasional violent gusts.
Ditto, . . . . .	5 A. M.	28.92	29.60	80	77	E.S.E.	Ditto, moderating a little, heavy rain since 3 A. M.
Ditto, . . . . .	8 A. M.	28.94	29.62	"	"	E.	Fresh breeze, clearing up and moderating.
Ditto, . . . . .	10 A. M.	28.96	29.64	80	77½	"	Breeze, moderating and abating.
Ditto, . . . . .	Noon.	"	"	"	"	"	Light airs, heavy rain with lightning and thunder.

5  
0J. HANNYNGTON, *Principal Assistant.**Maubhoom Division, Principal Assistant's Office, Purulia, the 11th November, 1842.*

This document shews that, as I have supposed at p. 810, the Purulia storm, if it was any part of a circular one, was doubtless an independent one, both as regards those to the Southward and to the N. W. of that station, the little change indicating that it was, if circular, passing on nearly an East and West track to the South of Purulia.

H. P.

*Notes on a curious species of Tiger or Jaguar, killed near the Snowy Range, north of Darjeeling. By Lieut. TICKELL, Bengal Native Infantry, Assistant Agent to the Governor General, S. W. Frontier.*

The animal from which these notes are taken was killed by a Bhotia, near the Snowy Range, in the northerly part of Sikkim, and its skin subsequently purchased by a gentleman who obligingly lent it to me for the purpose of sketching. The want of a better model to copy from, has probably rendered my drawing, with regard to outline, faulty in many points. But careful measurements, protracted on a scale, may give a tolerable approximation to true proportions and general aspect, and the markings of the skin are faithfully delineated, as well as the color of the fur carefully described.

Dimensions of the Skin.

			<i>Feet.</i>	<i>Inches.</i>
From nose to root of tail,	..	..	3	5
Tail,	..	..	2	10½
Centre of back, between the shoulders to				
sole of fore-paw,	...	..	2	0½
From root of tail to sole of hind paw,	..	..	2	1¾
„ nose to eye,	..	..	0	4½
„ eye to ear,	..	..	0	5½
„ ear to between shoulders,	..	..	0	8

Of the breadths of various parts I take no measure, for they are in places shrunk, and in others pulled out during the operation of flaying. The head is narrow and nose somewhat elongated, the muzzle approaching the attenuated form in some of the smaller cats, leading into "Viverrina." Limbs and body bulky and low, and the tail very thick, long and furry. The hair on other parts is thick and soft, but shorter



Scale of  $1\frac{1}{3}$  Inches to a foot. SK Tickell



than in the Leopard. Claws powerful. Lips, brows, and cheeks near the corners of the mouth, furnished with whitish vibrissæ.

*Color.*—Pale bistre brown, (a plain dullish clay brown,) fading on lower parts inside the limbs, and on cheeks and lips to pale rufous tawny. Centre of head covered with small longitudinal black spots, a few also about supercilium. Inferiorly and posteaally to eye, two narrow stripes reaching to molar angle, and produced, with broken intervals, by other broader stripes along the side and front of neck. A black band across throat, bases of ears black. From behind ears, all along mesial line of back, a double line of chain-like stripes, more or less interrupted and more or less parallel. On the nuchal region these diverge and afford room to an inner, smaller, similar chain. From each side these chains diverge three large ovate spaces, encircled by broken lines and patches, well defined posteaally, almost obsolete anteaally. The loins and flanks of the belly, instead of these large patches, have similar but smaller and more numerous ones; some nearly circular, all packed together so as to leave narrow intervals between them. On the limbs the markings are more irregular, consisting of zig-zag longitudinal patches, decreasing to spots on the carpal region. Paws (as nose) plain dull brown. Tail brown, thickly furred and marked black. Its end plain brown. The large oval spaces and the smaller ones of the after-parts of the sides do not reach to the belly, which is marked with large irregular patches and lines. These marks are all, above and below, black. And the areas of the large encircled spaces, as also of the smaller ones, above-mentioned, are shaded with a darker tinge of brown, and the former are therein studded with black spots, which give the fur a rich and beautiful appearance.

Although I have not so named it above, I have little doubt that this animal is the same as the *Felis Macrocelis* of Temminck, known at Sumatra by the name of Rimau-dihan, or 'Tree Tiger', and minutely described in Jardine's *Naturalist's Library* in the volume on *Felinæ*. The ground-color of the body is there said to be greyish, not the slightest tinge of which is perceptible in the skin before me. The size of the present subject is also superior, its total length being six feet and three and a half inches. In all other respects the description exactly coincides. The bulky limbs, stout body and powerful retractile claws of the animal do not seem to accord well with Sir Stamford Raffles' description



of its innocuous habits, of its feeding almost entirely on birds, (caught in trees!) and on the poultry of the villagers, and of its becoming readily and permanently tame after capture.

The Lepchas here call the animal "Pungmar," and the Bhotias "Zik;" their accounts are widely different to the above. They describe it as an uncommonly fierce and wary animal, difficult to approach, and dangerous to attack, from its invariably turning on the assailant if wounded. It is a rarer animal than the "Sejjiak" or Leopard; but it is to be found in the vallies lying north of Darjeeling, in dense jungle, chiefly by the banks of rivers; the Ranget, Roongnoo, &c. affecting low places in preference to mountain tops. It approaches the villages of the Bhotias and Lepchas sometimes, and kills goats, pigs, &c.; of its predeliction for poultry, nothing is said by them; and of its propensity to climb trees, I could gather nothing satisfactory. The Lepchas affirm that it has been seen on trees, but that it ascends them *in play*, and not to seek food. Indeed the notion of such a large animal catching birds on trees, appears ridiculous. Altogether the accounts as received by me, of the "Pungmar" tally more with the description (as to disposition) of *Felis Nebulosus*, the "Rimau Maug" of the Sumatrans, as cursorily given in the work above referred to.

*M. Stanislas Julien on the Study of the Chinese Language. Translated for the Journal of the Asiatic Society. By HENRY PIDDINGTON, Sub-Secretary, Asiatic Society.*

The Asiatic Society has just received from its author M. Stanislas Julien, a work entitled "*Exercices Pratiques d'Analyse de Syntax et de Lexigraphie Chinoise*," of which the subject is a critical examination of thirteen lines of a translation of a notice in the work of the Chinese traveller and author Hionen-tsang upon India, by M. Pauthier.

In this translation, M. Stanislas Julien detects ninety-four faults in thirteen lines! and his criticism is approved by the first Chinese scholars of England, Germany and Russia. His work is dedicated to his friend, Mr. Morrison. With this controversy we have nothing further to do than that it may serve to put us a little on our guard as to what some Chinese translations *may* be;\* but the introduction to M. Julien's paper is so remarkable, as containing the opinions of a first rate Chinese scholar and a

\* As for instance, some which were copied from the Canton Register into the Calcutta papers about a year or more ago, in which, in a single proclamation, half a dozen common English, and I believe some Latin quotations were inserted, and this we were gravely told, was a translation from a Chinese State Paper.—H. P.

man of letters, highly distinguished in other walks, on the study of the Chinese language, that I have thought it well worth translation; since at the present time, nothing which can encourage or facilitate the study of this language is indifferent to us, independent of its high interest in a mere philological point of view. This introduction I find, also appeared with his first controversial paper in the *Journal Asiatique*, for May 1841, but it is reprinted with the present pamphlet.

“The time is now happily far distant since it was generally believed in Europe, that the study of the Chinese language required, even in China, the whole life of a man of letters. M. Remusat has greatly contributed by his works and his teaching to destroy this prejudice, and if some men of learning yet give credit to it, it is because they have not taken the trouble to examine the question. This opinion would indeed be well-founded, if to speak, read, and write Chinese it were necessary to learn the forty-two thousand characters, which compose the great Dictionary, published in thirty-two octavo volumes by the emperor Khang-hi; for certainly not a single Chinese man of letters would be found capable of such a prodigious effort of memory. But it is as useless for a Chinese, or a European to know, and to be able to write all the characters of the *Khang-hi-toen-tien*, (Khang-hi’s Dictionary,) as for a foreigner studying our language to be acquainted with all the words of the French Dictionary of Boiste, which in mere words is three times as rich. Supposing that the most complete of our Dictionaries contains, as is said, a hundred and twenty-four thousand words, we may say without fear of contradiction, that a foreigner who knows only three or four thousand, would be able to read the majority of French authors. More than a hundred thousand words, or terms, are relative to sciences, arts and trades, and which seldom occur in literary works. When the reader meets with them, he looks for them in a good Dictionary, and continues his reading without fancying that he does not understand French because he is unacquainted with some choice scientific or technological terms.

The case is exactly the same with the Chinese Dictionaries. The Emperor Khang-hi’s would be reduced from forty-two thousand to six or eight thousand words,\* if we were to subtract from it about ten thousand variations of ancient and obsolete characters, of names of men, of places, of mountains, and of rivers, and of the terms belonging to sciences and art.†

\* Several with no meaning, Marshman’s Introductory Remarks, p. 31.

† 1900 characters form the materials of the language, Marshman, p. 37. ~

Under the *Han* dynasty, says the author of the Vocabulary of the *Kings*, candidates for the offices of historians of the empire were required to know at least nine thousand different characters. Now, as the complete annals of any epoch must comprise, in methodical order, almost every subject of literature and science, it would appear from this alone, that the number of characters which the most learned men were required to know, differs prodigiously from that which many persons in Europe suppose necessary for the lowest literary grades.

We may indeed suppose, that these last hardly require more than five or six thousand words to speak, read, and write Chinese. In fact, the four classic books do not contain more than two thousand and four hundred characters; but nevertheless, a person who has carefully studied them, and who is at the same time master of the principles of Chinese syntax (*construction*,) can understand without assistance almost all books of history, geography, and philosophy. In China the candidates for the literary rank of *Kiu-jin*, (*Licentiate*,) are only required to have well studied the four classic books, and any one of the *Kings* (canonical books,) which they may choose.

From what has been said, the study of the Chinese language does not require, as far as relates to the necessary words, more trouble than any foreign language; such as German for instance, which is commenced without any fear, and with a certainty of mastering it.\* But the difficulty in the study of Chinese does not consist in the number of words. It is well known, that this language is a monosyllabic one, and that its words do not allow of inflexions indicating in substantives and adjectives genders, numbers and cases, and in verbs, times and persons. Moreover, the same word sometimes changes its value in changing its place, and becomes a substantive and adjective; a passive active, or neuter verb or adverb. The word *chew* for example, may signify good (substantive,) good (adjective,) esteem good (approve,) and good adverbially taken; when the mechanism of the Chinese language is understood this word is as explicit in its different positions as the Latin words *bonum, bonus, bonum judicare, bené*.

The English language has some similarity to this. Certain substantives by their position, and by the words which accompany them, become sometimes adjectives, verbs, and adverbs, without the

\* See also Marshman's Introductory Remarks, p. 3.

least difficulty arising therefrom to the reader or hearer. Thus the word *cut*, is an adjective in "a *cut* wig," and a verb in "to *cut* timber."

The word present (a gift) is an adjective in "the *present* season," and a verb in "to *present* a man."\*

The word *head* is an adjective in "the *head* workman," and a verb in "to *head* the people."

In Chinese, the word *cheou* (head,) may become, according to circumstances, adjective or verb, or an adverb.† The English word "*pen*" is a verb in "to *pen*," (write,) a letter.

The Chinese word *pi* (pencil) has the same scope; it may signify, according to its position, "*pencil*," and "to write with a pencil."

It follows then, that to understand Chinese, it is not sufficient to be acquainted with a great number of words. Although the nine thousand words formerly required to become one of the historians of the empire should be perfectly known by heart, this alone would not suffice to understand half a page of the easiest Chinese text.

To be able to give to each word the value resulting from its position, — and to catch the varying sense of the prepositions and particles,‡ which determine the reciprocal relation of words, the language must be studied systematically; the student must have analysed, and I might say *dissected*, philosophically, the best translated works by the Missionaries, or by the learned of Europe, who have taken them for guides. He will then be able to distinguish with certainty, the positional values (*valeurs de position*,) upon which the knowledge of the Chinese language mostly depends. In this respect its difficulties are of a peculiar kind; but not greater nor more numerous than those of other languages of the East or of Asia. We have seen many persons, who after some years of study and application, have been able to read, translate or analyse with all desirable exactitude, ancient or modern Chinese works relating to their studies. I may name M. Bazin, senior, who has given to the learned world a first volume of Chinese Dramas, completely translated in prose and verse, and who is now about to publish the complete translation of a celebrated Drama in twenty-

\* Our English readers will observe, that M. Julien has here forgotten the pronunciation which makes a different word of it. He probably alludes here to the mere spelling, which to the eye of a Chinese, as to that of a child, makes it the same word as the substantive.

† Examples from Marshman, p. 195.

‡ Marshman alludes to prepositive characters to mark the cases of nouns, and again, p. 994, "every termination is supplied by position."



four acts.\* M. Theodore Pavie, who had studied Sanscrit and Chinese at the same time, acquired in a few years a remarkable knowledge of these two languages, and to him we owe a volume of Chinese Novels, not less distinguished by the elegance of their style, than by the fidelity of the translation; and M. Biot, junior, whose early studies and a solid knowledge of the Chinese language, have enabled him to examine, with much advantage to science, books written in the ancient dialect, and relative to the history, geography, statistics, or arts of China. The readers of the *Journal Asiatique* have often had occasion to appreciate the Memoirs with which he has enriched its pages. He is now preparing for the press the Alphabetic Concordance of the names of Chinese towns of the first, second, and third rank, which have been changed under different dynasties. This will reflect new honour on the author, and new light upon our knowledge. I might add to these names, those of M. Leon Pages, Advocate, who has just concluded a French translation of the four classic books (*Kings*) with a running commentary, and of his cousin, M. Edmé Mechain, (grandson of the astronomer,) lost to science by an early death when Vice-Consul at Smyrna. M. Mechain had learnt Chinese when a law student, and only at his leisure hours, and yet in three years he was able to read with facility. Son of a Consul General, and pursuing that profession, he hoped to become one day French Consul in China, and that his knowledge of the languages of the celestial empire might be of use to our commerce, our arts, and our literature. His name as a Chinese scholar would be still unknown, were it not that I have felt it a duty to mention here his zeal and his remarkable acquirements in Chinese.

It is thus a well established fact, both from the examples which I have quoted, and from a sort of public notoriety, that in a few years a tolerable knowledge of Chinese may be acquired. But there is *one indispensable condition*, which is to study with care the laws of construction, the fixed principles which determine the grammatical functions of the words and modify their value according to the place in which they stand in the sentence; the value of the prepositions which are sometimes significative as in other languages, and sometimes lose their usual meanings, becoming purely phonetic marks of regimen,

\* This Drama, entitled "*Pi-Pa-ki*, or the History of the Lute," was published in 1841, by Dupont.

as have I believe demonstrated in the dissertation at the close of my Sinico-Latin edition of the works of the Chinese philosopher *Meng-tseu*. If these rules, which are for Sinologists what those of inflexion are in other languages, and which are their best guides in interpreting a passage, be neglected, the Chinese language may be studied for many years without ever acquiring the degree of knowledge necessary to become a faithful translator."

*Proceedings of the Asiatic Society.*

*(Monday Evening, the 4th September, 1843.)*

The regular monthly meeting of the Society was held at the rooms on Monday the 4th September, at the usual hour. The Honorable the President in the chair.

The following Members proposed at the August meeting were ballotted for, and declared duly elected. The usual communication was ordered to be made to them :—

Major W. Anderson, B. H. A.; F. Mouat, Esq. M. D., B. M. S.; and Capt. Stephen, B. N. I., A. D. C. to the Honorable the Deputy Governor.

And the following new Member was proposed :—

Dr. Sprenger, B. M. S. proposed by the Honorable Sir H. Seton, seconded by Mr. H. Piddington.

The following list of Books, presented and purchased, was read :—

*Books received for the Meeting of the Asiatic Society, on the 4th September, 1843.*

The Oriental Christian Spectator, second series. Bombay, August 1843, vol. iv, No. 8.—Presented by the Editor.

Journal of the Bombay Branch of the Royal Asiatic Society. Bombay, April 1843, No. 5.—Presented by the Society.

Journal Asiatique, 3me série, tome vix. Juillet à October 1842, Nos. 76 à 78, Paris.—Presented by the Society.

Jamieson's Edinburgh New Philosophical Journal, Edinburgh, 1843, vol. xxiv, No. 67.—Presented by the Author.

Proceedings of the Geological Society of London, 1842, vol. iii, part ii, No. 91.—Presented by the Society.

Proceedings of the Academy of Natural Sciences of Philadelphia, for August, September and October 1842, Nos. 17, 18, and 19.—From the Academy, (two copies.)

London, Edinburgh, and Dublin Philosophical Magazine and Journal of Science, third series, London, January 1843, vol. xxii. Nos. 141 and 142.

Transactions of the Royal Astronomical Society, London, 1842-43, vols. xii, xiii, and xiv.—From the Astronomical Society.



Early Records in Equity. Calcutta, 1842.—Presented by the Hon'ble Sir H. W. Seton.

Calendars of the Proceedings in Chancery in the reign of Queen Elizabeth.—Presented by the Hon'ble Sir H. W. Seton.

Bulletin de la Société de Géographie, 2me série, Paris 1842, tome xvii.

Naturalist's Library.—Ornithology, vol. xiv, Nectariniadæ, or Sun-Birds. Edinburgh, 1843.—From the Booksellers.

Pauthier, Réponse à l'Examen Critique, Paris, 1842.—Presented by the Author.

Pautbier, Examen Méthodique des faits qui concernent Le Thian-Tchu ou L'Inde, Paris, 1840.—Presented by the Author.

Pauthier, Vindiciæ Sinicæ. Dernier Réponse à M. S. Julien, Paris 1842.—Presented by the Author.

Bopp, Vergleichende Grammatik des Sanskrit, Zend, Griechischen, &c. &c. Berlin, 1842, Vierte Abtheilung.—Presented by the Author.

The Secretary read the following Memoranda :—

1. It has been suggested by several Members, and the Secretary begs now to mention it, that the works of reference belonging to the Library of Fort William, which as a temporary arrangement were made over to the Public Library, might more appropriately be deposited in that of the Society, and this with more advantage to the public in general.

2. Government having requested a further supply of fifty copies of the Scinde Vocabulary, these have been sent from the copies placed for sale with the Booksellers. The copies for sale at Bomhay have been sent to Messrs. Collett and Co.

3. It has been suggested to Government, that at the present time a reprint of Lieut. Leech's Grammar and Praxis, &c. of the Brahoee, Beloochee and Punjabee languages, which forms about 61 pp. of the 7th vol. of the Journal would be most useful with reference to our new acquisitions in the West of India. In consequence of this, a reprint has been sanctioned, and is now in progress at Bishop's College Press.

With reference to the first of these Memoranda, it was ordered, that the Secretary be requested to inquire into and state to the Committee of Papers, what were the conditions under which the works in question were deposited in the Public Library, and to frame thereupon an application for them in terms of his suggestion.

The Secretary farther reminded the Society, that two works from Messrs. Ostell, *i. e.* Cuvier's Mammiferes, and Swainson's Illustrations, had remained for inspection, and that some Nos. of Smith's Zoology of Southern Africa had also been sent for inspection by a private individual, who was desirous of disposing of them. Some conversation took place, when it was agreed upon, that the purchase of Cuvier should be farther considered, with reference to the possibility of obtaining a copy cheaper from Europe. The Honorable the President begged to be allowed to present to the Society, Swainson's Illustrations, and Dr. Smith's Zoology of Southern Africa in testimony of his high appreciation of the indefatigable labours of Mr. Blyth

in the Zoological Department, and his desire to assist and forward them. The best thanks of the Society were voted for this very liberal donation.

The following note from the Librarian, addressed to the Secretary, was read :—

*To H. TORRENS, Esq. Secretary, Asiatic Society.*

SIR,—I have the honour to forward to you the enclosed note of Mr. J. Thomason's, who desires me to bring to your notice, that some papers, published by the Royal Asiatic Society and the Bombay Branch Society are not in our Library.

The papers alluded to, are contained in the Transactions of the R. A. S. and the Journal of the B. B. S., and with regard to these publications I beg to state, that we have received only the first three volumes of the Transactions of the R. A. S.,\* and there are only a few numbers of the above-mentioned Journal in our Library.

As these publications are most intimately connected with the progress of Oriental learning, I beg leave to propose, that they should be procured for the Library.

23rd August, 1843.

Your most obedient servant,

E. ROER.

It was ordered, that the works alluded to be completed for the Library.

Read the following letter, accompanying a valuable donation of rare Books by the Honorable Sir H. Seton, for which the thanks of the Society were voted :—

*To the Secretary of the Asiatic Society.*

SIR,—As it appears by the Catalogue lately published, that the Library of the Society, among the works published by the Record Commission, does not contain the Calendars of the Proceedings in Chancery in the Reign of Elizabeth, I beg to present it with a copy of them, together with an unpublished Tract relating to their contents.

I have the honor to be, &c.

Calcutta, 24th August, 1843.

H. W. SETON.

Read the following letter from the Under-Secretary to the Government of Bengal, sanctioning an allowance of Co's. Rupees 64 per mensem, for the expenses of the Museum of Economic Geology :—

No. 842.

*From Under-Secretary to the Government of Bengal to H. TORRENS, Esq. Vice-President and Secretary, Asiatic Society.*

SIR,—With reference to the second paragraph of my letter, No. 691, of the 3rd instant, I am directed to inform you, that the Honorable the Deputy Governor of Bengal, with the concurrence of the Government of India, is pleased to sanction the monthly sum of Co's. Rs. 64, for establishment and contingencies of the Museum of Economic Geology.

I have the honor to be, Sir,

Your most obedient servant,

Fort William, 31st July 1843.

A. TURNBULL,

*Under-Secretary to the Government of Bengal.*

\* The Transactions of the R. A. S. are now published in the form of a Journal, which the Library possesses.

Read the following extract of a letter from Dr. Wise, B. M. S. to the Sub-Secretary, dated Dundee, 29th June, 1843.

I was hurried across Egypt in such a manner as prevented me from delivering the box of Books in person to Mohammud Alee, which the Asiatic Society, at your kind suggestion, charged me with. I sent it to the palace of Grand Cairo, and requested the British Consul and Clot Bey to see that it was delivered in a suitable manner. This I am sure they did, and to my great regret it was all I could do, as the Padsha was in Upper Egypt when I was at Cairo. After all the preparations I had made, the steam boat was not able to land our party at Cosseir on account of the weather, and I therefore came to England with the same mail I had come from India with.

Read letter from M. Delessert, returning thanks for the honor conferred on him by his election at the August meeting.

Read the following letter from Messrs. W. and H. Allen, the Society's Booksellers and Agents in London:—

HENRY PIDDINGTON, Esq.

SIR,—We have the pleasure to send you, as Secretary to the Asiatic Society, our account to this date. We enclose the particulars of £43: 16: 4, against the Society for money paid, and books supplied by us. The account current annexed herewith gives credit for the publications of the Society sold during the year, which leaves a balance of £13: 18: 3, due to us.

We have hitherto been instructed to keep the account for the sales of the Journal separately, and the enclosed statement for the sales amounts to £32: 12: 0. The two accounts shewn, together, leave a balance of £18: 18: 9 in favor of the Society, and we leave you to determine the mode of settlement. We shall be most happy to honor your draft at 30 days' sight for either of the balances. If you draw for £32: 17: 0, then the Society will be indebted to us the balance of the account current.

We have the honor to be, Sir,

Your most obedient servants,

London, 30th June, 1843.

W. H. ALLEN and Co.

DR. *The Asiatic Society Calcutta, in Account with William H. Allen and Co.* CR.

30th June 1843.—To paid sundry charges on Books received to forward, &c. including £21: 0: 0 paid to the Oriental Fund. as per statement enclosed,.. £ 43 16 4

£ 43 16 4

To Balance, ... £ 13 18 3

London, 30th June, 1843.

30th June 1842,—By Balance stated, .. . . . £ 1 14 9  
30th June 1843.—Account sales as per statement herewith, 28 3 4  
By Balance,..... 13 18 3  
£ 43 16 4

E. E.

W. H. ALLEN AND Co.

DR. *The Secretary of the Asiatic Society, Calcutta, in Account with*  
 WM. H. ALLEN & CO. CR.

Journal, No.	On hand, June 30, 1842.	Received since.	On hand, June 30, 1843.	Sold.	Per Copy.	
97, ...	11	...	8	3	2-9	0 8 3
" " 98, ...	11	...	7	4	...	0 11 0
" " 99, ...	14	...	12	2	...	0 5 6
" " 100, ...	12	...	11	1	...	0 2 9
" " 101, ...	10	...	9	1	...	0 2 9
" " 102, ...	13	...	11	2	...	0 5 6
" " 103, ...	12	...	9	3	...	0 8 3
" " 104, ...	10	...	7	3	...	0 8 3
" " 105, ...	11	...	8	3	...	0 8 3
" " 106, ...	11	...	8	3	...	0 8 3
" " 107, ...	14	...	11	3	...	0 8 3
" " 108, ...	13	...	11	2	...	0 5 6
" " 109, ...	14	...	9	5	...	0 13 9
" " 110, ...	16	...	12	4	...	0 11 0
" " 111, ...	17	...	12	5	...	0 13 9
" " 112, ...	16	...	11	5	...	0 13 9
" " 113, ...	15	...	11	4	...	0 11 0
" " 114, ...	15	...	11	4	...	0 11 0
" " 115, ...	16	...	12	4	...	0 11 0
" " 116, ...	17	...	13	4	...	0 11 0
" " 117, ...	16	...	12	4	...	0 11 0
" " 118, ...	...	25	*2 10	13	...	1 15 9
" " 119, ...	...	50	*13 10	27	...	3 14 3
" " 120, ...	...	50	*13 13	24	...	3 6 0
" " 121, ...	...	50	*13 14	23	...	3 3 3
" " 122, ...	...	50	*13 15	22	...	3 0 6
" " 123, ...	...	50	*13 17	20	...	2 15 0
" " 124, ...	...	50	*13 16	21	...	2 17 9
" " 125, ...	...	70	*13 36	21	...	2 17 9
" " 126, ...	...	50	*13 18	19	...	2 12 3
" " 127, ...	...	50	*13 18	19	...	2 12 3
" " 128, ...	...	50	*13 23	14	...	1 18 6
						40 3 0
Paid Sundry Advertising, Portorage, Booking, &c. ...						3 5 8
Commission 10 per Cent....						4 0 4
						7 6 0
						£32 17 0

E. E.

WM. H. ALLEN AND CO.

London, 30th June, 1843.

\* These figures are the number of copies distributed as per list below.

## DISTRIBUTED.

1 Copy No. 18, to Royal Society, Edinburgh.

1 " No. 18, to Professor Schlegel.

—  
2

1 Each, No. 119 to 128, to Professor Wilson.

1 " " Ed. Asiatic Journal.

1 " " Royal Society.

1 " " Royal Asiatic Society.

1 " " Ed. Edinburgh Philosophical Journal.

1 " " Royal Institution.

1 " " Ed. Philosophical Magazine.

1 " " Athenæum,

1 " " Baron Von Hammer Purgstall.

1 " " University of Bonn.

1 " " Royal Society of Edinburgh.

1 " " Ed. Spectator,

1 " " Professor Schlegel.

—  
13

## The Asiatic Society, Calcutta, in Account with

DR.

WM. H. ALLEN AND CO.

CR.

	On hand June 30, 1842.	Recd. since.	On hand June 30, 1843.	Sold.	Per Copy.			
Asiatic Researches, vol. 15, 4to. stitched, ...	19	...	19	...	24	0	0	0
Ditto, ... vol. 16, ...	10	...	9	1	...	1	4	0
Ditto, ... vol. 18, part 1, ...	7	...	5	2	12	1	4	0
Ditto, ... vol. 18, part 2, ...	10	...	8	2	...	1	4	0
Ditto, Index to first 18 vols. ...	21	...	20	1	...	0	12	0
Ditto, ... vol. 19, part 1, ...	34	...	31	*2	...	1	4	0
Ditto, ... vol. 19, part 2, ...	42	...	38	*3	...	1	16	0
Ditto, ... vol. 20, part 1, ...	33	...	29	*3	...	1	16	0
Ditto, ... vol. 20, part 2, ...	40	...	37	*2	...	1	4	0
Amis ul Musharahin, 4to. stitched, ...	3	...	3	...	...	0	0	0
Futawa Alemgiri, vol. 1, royal 4to. ...	2	...	1	1	24	1	4	0
Ditto, ... vol. 2, ...	2	...	1	1	...	1	4	0
Ditto, ... vol. 3, ...	4	...	3	1	...	1	4	0
Ditto, ... vol. 4, ...	5	...	4	1	...	1	4	0
Ditto, ... vol. 5, ...	1	...	...	1	...	1	4	0
Ditto, ... vol. 6, ...	1	...	...	1	...	1	4	0
Inayah, ... vol. 3, 4to. ...	1	...	1	...	...	0	0	0
Ditto, ... vol. 4, 4to. ...	33	...	32	1	...	1	4	0
Jawame ul Ilm ul Riazi, 4to. stitched, ...	1	...	...	1	...	0	7	2
Kifayah, ... vol. 3, 4to. ...	7	...	6	1	...	1	4	0
Ditto, ... vol. 4, 4to. ...	6	...	5	1	...	1	4	0
Mahabharata, ... vol. 1, royal, ...	8	...	6	2	...	2	8	0
Ditto, ... vol. 2, ...	11	...	8	3	...	3	12	0
Ditto, ... vol. 3, ...	14	...	11	3	...	3	12	0
Ditto, ... vol. 4, ...	1	...	...	1	...	1	4	0
Index to Mahabharata, 4 parts, ...	...	20	20	...	...	0	0	0
Ditto, ... part 4, ...	...	20	20	...	...	0	0	0
Naishadha Charita, 8vo. stitched, ...	4	...	3	1	17	0	12	0
Raja Tarangini, complete in 1 vol. } royal 4to. stitched, ... }	22	...	21	1	20	1	0	0
Susruta, vol. 2, 8vo. ditto, ...	3	...	2	1	7-2	0	7	2
Tibetan Dictionary, 4to. ditto, ...	6	...	5	1	20	1	0	0
						35	2	4

Boarding 1 Copy of the Asiatic Researches, vol. 16, ... 0 1 10

Paid Entry Duty and Wharf charges on Index to Mahabharata, per Ellenborough, ... 2 5 0

Paid Sundry, Advertising to this date, ... 2 17 0

Commission 5 per Cent. ... 1 15 2

6 19 0

£28 3 4

\* Asiatic Researches, vol. 19, part 1, }  
 Ditto, vol. 19, part 2, } Sent to Royal Library, Berlin, per order of  
 Ditto, vol. 20, part 1, } Professor Wilson, July 3, 1842.  
 Ditto, vol. 20, part 2, }

WM. H. ALLEN AND CO.

DR.	<i>Asiatic Society, Calcutta, to W. H. ALLEN AND Co. London.</i>	CR.
1842.		
July 6,	Per Owen Glendower.—Cuvier and Valenciennes, <i>Histoire des Poissons</i> , tome 16, 8vo. stitched and Plates, 421 to 455, £	2 2 0
	Journal des Savants, May, ... ..	0 0 0
	Shipping Expences, &c. ... ..	0 2 0
		2 4 0
„ 30,	Per Agincourt.—Journal Asiatique, 7 Nos. enclosed, ... ..	0 0 0
	Paid Duty on ditto, ... ..	0 2 6
	Journal des Savants, June, ... ..	0 0 0
	8vo. Parcel received to forward from Royal Geographical Society, ...	0 0 0
	8vo. Parcel ditto from Geographical Society, ... ..	0 0 0
	Shipping Expences, &c. ... ..	0 1 6
		0 4 0
Aug. 31,	Per Prince of Wales.—Journal des Savants, July, ... ..	0 0 0
	8vo. Parcel received from Society of Arts enclosed, ... ..	0 0 0
	Shipping Expences, &c. ... ..	0 1 0
		0 1 0
Sept. 30,	Per Windsor.—Journal des Savants, August, ... ..	0 0 0
	8vo. Parcel received from Paris, and paid duty on the same, ...	0 4 6
	Shipping Expences, &c. ... ..	0 1 6
		0 6 0
Nov. 19,	Per Zenobia.—Journal des Savants, September, ... ..	0 0 0
	Royal 8vo. Parcel received to forward from Oriental Translation Fd. ...	0 0 0
	8vo. Parcel from Geological Society, ... ..	0 0 0
	Shipping Expences, &c. ... ..	0 2 0
		0 2 0
Dec. 23,	Per Stag.—Journal des Savants, October, ... ..	0 0 0
	Niebuhr's History of Rome, vol. 3, 8vo. calf gilt, ... ..	1 2 0
	8vo. Pamphlet from Geological Society enclosed, ... ..	0 0 0
	Antiquitates Americanæ, 1837, C. C. Rafer, imp. 4to. bound, ...	0 0 0
	Shipping Expences, &c. ... ..	0 3 0
1843.		1 5 0
Jan. 25,	Per Carnatic.—Received to forward, ... ..	0 0 0
	Bulletin de la Société Geographie, vol. 17, 8vo. ... ..	0 1 0
	Paid Duty on the same, ... ..	0 0 0
	8vo. Parcel received from Paris, ... ..	0 3 0
	Paid Duty on ditto, ... ..	0 0 0
	8vo. Pamphlet from Geological Society, ... ..	0 0 0
	Jameson's Journal, No. 67, ... ..	0 0 0
	Bopp, Vergleichende Grammatik, 4to. stitched, ... ..	0 0 0
	Paid Duty on ditto, ... ..	0 1 6
	Shipping Expences, &c. ... ..	0 2 0
		0 7 6
Mar. 23,	Per Patriot Queen.—Journal des Savants, November and December 1842, and January 1843, ... ..	0 0 0
	Paid Subscription on Journal des Savants, January to Dec. 1843, ...	2 18 0
	Received to forward, Julien Simple Exposé, &c. 8vo. stitched, ...	0 0 0
	Received to forward, ... ..	0 1 6
	Paid Duty on Julien Simple Exposé, &c. 8vo. stitched, ... ..	0 0 0
	Tassy, Chapitre Inconnu du Coran, 8vo. stitched, ... ..	0 4 0
	Shipping Expences, &c. ... ..	0 4 0
		3 3 6
May 18,	Per Seringapatam.—J. E. Gray, <i>Spicologia Zoologica</i> , part 1, royal 4to. stitched, ... ..	0 7 0
	Leach's Zoological Miscellany, colored, 3 vols. Royal 8vo. cloth, lettered, ... ..	4 13 0
	G. R. Gray's List of the Genera of Birds with their Synonymes, 2nd Edition, 8vo. cloth, ... ..	0 9 0
	Bibliothèque de M. Silvestre de Sacy, liv. 1, 8vo. stitched, and de Delhi a Bombay, par Roberts, and paid Duty on ditto, ... ..	0 2 6
	Journal Asiatique, January and February, and paid Duty on ditto, ...	0 1 0
	Transactions of the Geological Society, vol. 6, part 2, 4to. stitched, ...	0 0 0
	Journal des Savants, February and March, ... ..	0 0 0
	Report of the British Association for 1842, 8vo. bound, ... ..	0 0 0
	Edinburgh Philosophical Journal, No. 68, ... ..	0 0 0
	Philosophical Magazine, April and May, ... ..	0 0 0
	Two Royal 8vo. Packets from the London Electrical Society, ...	0 0 0
	Saadi, par Garcin de Tassy, 8vo. stitched, ... ..	0 0 0
	Shipping Expences, &c. ... ..	0 12 0
		6 4 6
	Paid Subscription to Rafer's <i>Antiquitates Americanæ</i> , 1837, 4to. bound, sent per "Stag," 23d December 1842, ... ..	3 0 0
	Paid Subscription to Oriental Fund, for 1842 and 1843, two years, ...	21 0 0
June 12,	Sundries per Essex.—As per Invoice stated, ... ..	4 15 0
„ 30,	Sundry Postages to this date, ... ..	1 3 10



And the following draft of reply to them was also read and approved of:—

Messrs. W. H. ALLEN AND Co., London.

DEAR SIRs,—By the July mail, I have the pleasure to acknowledge the receipt of your letters of the 17th and 30th June last, to the address of Mr. Piddington.

I note that the Marble Bust of the late James Prinsep, Esq. sent to you by Professor Wilson, to be forwarded to the Society has been shipped per ship “*Essex* ;” on the arrival of the vessel, the Bust will be landed per bill of lading you forward.

The several statements of accounts forwarded with your letter of the 30th June last, have been found correct and in order ; and although the Society is not disposed at present to disturb the account current closed to the 30th June 1843, by a balance against the Society of £13 : 8 : 3 ; yet I am desired to say, that it is susceptible of readjustment with reference to my letter of the 16th February,\* as regards the cost and charges of £18 : 10 : 0, for a copy of Arrowsmith’s Map of India, forwarded by you per ship “*Persian*,” which has been rejected by the Society as incomplete, and in consequence useless for the purpose for which the Map was commissioned from England. You have been already advised, that the Map has been made over to Messrs. Thacker and Co., to be disposed of on your account.

The property in the Journal from No. 133, is now vested in the Society ; but you will continue to keep its sale account separate as heretofore, furnishing as usual, your Account Current distinct from that of the Society’s other transactions with you ; my interest, however ceases from No. 132, and you will therefore render up to that number a separate account to me.

The sum of £32 : 17 : 0, being for sale proceeds of the Journal up to No. 128, transferred to the Society’s general Account Current with you, has been adjusted here at the exchange of 1s. 11d. per Rupee in Co’s Rs. 342 : 12 : 6, the rate of exchange, London on Calcutta, ruling on the 30th June. I am dear Sirs,

Your faithfully,

H. TORRENS,

Vice President and Secy. As. Socy.

Asiatic Society’s Rooms, Calcutta,  
5th September, 1843.

Read the following letter from the Secretary to the Bombay Branch of the Royal Asiatic Society :—

To the Secretary to the Asiatic Society of Bengal, Calcutta.

SIR,—By desire of the Bombay Branch of the Royal Asiatic Society, I beg to enclose bill of lading of a case of Geological Specimens addressed to “*Curators of the Museum of Economic Geology of India*,” shipped on board the “*Fazal Rubany*,” Capt. Stewart. I shall forward a list of the Specimens, together with such remarks as may be required, with the duplicate of the bill of lading. Freight has been paid here.

I have the honor to be, Sir,

Your most obedient servant,

Bombay, Asiatic Society’s Rooms,  
5th August, 1843.

JOHN G. MALCOLMSON,  
Secretary B. B. R. A. S.

\* Not yet dispatched with reference to this paragraph.

The Curator stated that the box would be landed in the course of the following day.

Read the following extract of a letter from Professor Wilson to the Sub-Secretary, dated 5th May, and brought out by Dr. Sprenger, who being present, was introduced to the Society by the Honorable the President :—

To H. PIDDINGTON, Esq., *Secretary, Asiatic Society.*

DEAR SIR,—I have requested Dr. Sprenger, who comes out in the Company's Medical Service, to take charge of the following Books for the Society :—

Sama Veda, Text.

Ditto, Translation.

Megha Duta, new edition.

Selections from the Mahabharata.

The two former I send on behalf of the Oriental Text Society, and the Oriental Translation Fund Committee—the two last upon my own. Yours truly,  
*East India House, 5th May, 1843.* H. H. WILSON.

Read the following from Prince Ghulam Mahommed, accompanying a clay bust made by a native artist :—

E. BLYTH, Esq. *Curator, Asiatic Society, &c.*

SIR,—I beg you will present to the Society, with my best respects, the accompanying Bust of their late President, the Honorable H. T. Prinsep, Esq. as a small token of my esteem of the public worth of the individual whom it represents, and I trust the Society will do me the honor of accepting it as the offering of their most sincere well-wisher.

I remain, Sir,

*Russapuglah, 23rd August, 1843.*

Your obedient servant,

GHULAM MOHUMED, PRINCE.

Read the following letter from the Secretary to the Agricultural and Horticultural Society of India :—

H. TORRENS, Esq. *Secretary, Asiatic Society.*

DEAR SIR,—As I believe, under the present system of publication, there is no objection to an interchange of the Journal of the Asiatic Society with those of other bodies, I beg on behalf of the Committee of Papers to state, that the Agricultural Society will be happy to exchange Journals with your Society. The interchange can commence with the Journals of the respective Societies from the beginning of the current year, should this proposal be acceded to.

I am, dear Sir,

Your's faithfully,

JAMES HUME,

*Honorary Secretary.*

*Agricultural Society's Room,  
Town Hall, August 17, 1843.*

The proposed exchange was agreed upon.

Read the following extract of a letter from Dr. Spilsbury to the Sub-Secretary, relative to the Mammoth Head brought down by Lieutenant Hickey :—

MY DEAR SIR,—I really have been quite horrified at the announcement in the Journal, (No. 136, or 50 N. S.) received last night of the Head from your *zealous contributor*. The history of that Head is as follows, and the Society at present have no more right to it than I have. It was exhumed at Brimhan Ghat, by the late Capt. M. Smith, then in charge of the Saugor district, (vide Journal, vol. viii. for 1839, p. 951 and its foot note.) He carried it to Saugor where I saw it, and where he gave it to me ; I then gave it to Cautley (for comparison, as I had sent a very large one previously to the Society,) and offered to convey it to Agra, which I did, and here all trace was lost for a long time. I could get no answer about it from Dr. Woodburn, the Garrison Surgeon, and it must have lain two years in his compound, not at Kamptee as you state. When H. with his Corps went from Saugor to Agra, I requested him to make enquiries, and let me know, which he did, stating, that it was all safe in W's. compound, of which I informed Cautley, who requested me when opportunity offered to send it to Calcutta, care of Cantor and Co. When H. was leaving Agra for Barrackpore, he asked me if he should take this Head in his boat, and which I gladly availed myself. About this time Cantor's house failed, and there was therefore no use in sending it to them, and it remained with H. pending Cautley's *hookum*. I shall write to Cautley to-morrow, and see what he says. I hope you duly received my remittance of 20th ultimo.

Benares, 15th August, 1843.

Read the following extract of Letter from Lieutenant Hutton :—

MY DEAR SIR,—I have the pleasure to announce the dispatch per Banghy to your address, of a small packet containing specimens for analysis of the wax or wax-like substance deposited on the leaves of a tree growing above Rajpore, by the larvæ or "*Flata limbata*," an insect closely allied to *F. Nigricornis*, a figure of which you will find in Donovan's *Insects of China*. The specimens of wax I should feel obliged by your analysing, and adding the results in a note to my remarks. There are likewise two specimens of the perfect insect in a little box which can be added to the Society's Museum after inspection. Can you tell me whether the Society possess any specimens of ores and minerals which they would exchange for any duplicates I may have of Minerals, &c. from Afghanistan and parts of India? Also, whether they have any duplicate insects for exchange? All of course in good condition. I wish much I could furnish you with the localities from which your Himalayan collection sent down by me, was presented; but my memoranda were destroyed during my absence in Afghanistan, and I cannot tell what you have received. Could you tell me what you had received together with the numbering of the specimens, I might perhaps tell, from my geological report and the aid of my own specimens, where yours are from.

I will in a day or two remit you the amount of my subscription, which is due for two or three quarters, I fancy.

Yours very truly,

J. HUTTON,

Mussooree, 23rd August, 1845.

M. A. S.

Read an application from L. Wray, Esq. requesting the Society's patronage of a work now publishing by him, under the title of "The Sugar Planter's Companion." It was considered by most of the members that this subject was so peculiarly within the province of the Agricultural Society's pursuits, that it might be better left wholly to that body.

Read the following letter from Captain Tickell to the Secretary :—

MY DEAR TORRENS,—I have the pleasure to send you a sketch of a curious kind of Tiger, made from a skin obligingly lent me by Lieutenant Biddulph, one of the residents here. The sketch and notes thereon I should wish to have published in the Journal, if they be thought worthy. And when they are done with I beg they may be returned to me, for I have no copy by me for my own collection. I hope this can be managed without trouble.

S. R. TICKELL.

*Darjeeling, 11th August, 1843.*

P.S.—When opportunity offers, I wish you would express my apologies to Mr. Piddington for my not having answered his note, about the skulls of the different tribes in my part of India. It reached me but an hour or two before I started for Darjeeling, and what with sickness and travelling, I have had no opportunity for replying to him. I doubt whether skulls could be procured in Singbhoom, as they are there exceedingly jealous about their dead, and burn the bodies to ashes, bones and all.

A lithographic proof of the drawing, which had been already prepared for the Journal, was exhibited, and as the work of a native artist, its extreme fidelity was much admired.

Read the following extract of Letter from Dr. Campbell, Resident at Darjeeling.

H. PIDDINGTON, Esq. *Secretary, Asiatic Society.*

I have sent you by to-day's Banghy, specimens\* of the Rock Salt of Eastern Thibet, which is brought here for sale by the Thibetans through the passes in the snowy range leading into Sikim. I may forward a note of particulars regarding this article at some future time. When purified by solution for recrystallisation, it is snowy white, and far superior for the table to the Indian salt. The price here at present is 5 seers per rupee.

Yours truly,

*Darjeeling, 7th August, 1843.*

A. CAMPBELL.

Read the following Letter from Capt. Hannington, addressed to the Sub-Secretary :—

H. PIDDINGTON, Esq., *Secretary to the Asiatic Society.*

MY DEAR SIR,—In the Journal of the Asiatic Society, No. 65, for May 1837, there is an article by Mr. H. T. Prinsep, on the mortality among members of the Civil Service. The table prepared by him, is from its extreme accuracy very valuable; but it would be still more so if brought up to the present time according to the method he has pointed out. It is indeed probable, that the register has been kept up, but I do not know by whom, or where to apply for information respecting it.

I therefore take the liberty to ask your aid in procuring it. I am prosecuting some inquiries of this nature, and the results if worth any thing, would be much at

\* No. 1. The red coloured salt.

„ 2. The white crystals found in the former in the proportion of 5 per cent.

„ 3. Bits of minerals found in the salt.

your service for publication in the Journal. If the Table can be obtained, I would put it into such form as would render it available for determining the expectation of life, and the values of annuities.

Knowing your zeal in these matters, I need not apologize for the trouble I am giving you.

Yours very faithfully,

Purulia, 21st August, 1843.

J. HANNINGTON.

The Sub-Secretary stated, that he had already addressed Mr. Charles Prinsep, who had pointed out various sources of probable information; others were suggested by the meeting, and amongst them the Honorable the President mentioned the information procured, and printed by a Committee of which Major Henderson was Secretary, and himself a member, of which the object was to found a Life Assurance Society for the benefit of the Civil Service, which had been printed in the Transactions.

Read the following Letter from B. H. Hodgson, Esq. Resident at Kathmandoo, accompanying a Catalogue of Nepal Birds, &c. :—

MY DEAR SIR,—I hope you have before this got my six boxes of specimens sent by Steamer, care of Messrs. Charrier and Co. Patna, also the tin box sent by Dak a few days ago.

The enclosed exhibits the whole arranged in the modern genera, and is by far the vastest Catalogue yet produced of Indian Birds. I wish Mr. Blyth to compare it with the specimens and then to publish it; after which the *whole* of the specimens and catalogues are to be sent home by my Agents, Colvin and Co., addressed to B. Hodgson, Esq. Longport, Canterbury. I have corrected the catalogue so far as I have time, and deem it sufficiently correct now to appear, but wish Mr. Blyth's prior revision.

Yours very truly,

Nepal, 22nd August, 1843.

B. H. HODGSON.

Read the following Letter and enclosed Reports from Capt. D. Williams, Assistant Commissioner at Arracan :—

MY DEAR SIR,—The Soogree, or Head Revenue Officer on the island of "Reguing" or "Flat Island" has just made a report, of which the enclosed is a translation, that on the 26th, 27th, 28th and 29th of last month, a Volcano broke out in the sea a little distance South of "False Island," and a new island was formed.

On reference to a chart of Arracan, you will see that "False Island" is East of "Flat Island," and the latter is South of "Round Island," whence I obtained the copper ore I lately sent to the Asiatic Society; the group is situated on the S. E. shore of the island of Chedooba. I consider the subject of sufficient interest to report on to the Society, especially as regards its vicinity to the island where the copper ore was found.

Your's truly,

Ramree, August 9, 1843.

D. WILLIAMS.

P.S.—I have sent for specimens of the soil of the new formation.

*Translation of a Report from Mungtee of Regwain.*

Mungtee, an inhabitant of the Purgunnah of Regwain, represents that on the south of the island of Joyghoyá-reen, which is situated within his jurisdiction, there arose at a



distance of about thirty bamboos a new island, where from the 19th to the 22d Wachloo,\* of the Mughee year 1205, there appeared of a sudden a fire (supernatural fire.) Considering this as a subject of importance, the petitioner brings the same to the notice of Hoזור.

### ترجمہ مکھ

رنگیوں پرگنہ کاسوکر ی غلام مسے منگتے نے خداوند کا جناب  
 علی میں عرض پہونچاتا ہی  
 غلام کا علاقہ جی گیوائیں زنجیرہ کا دکھن طرف اندازی ۳۰ تیس  
 بانس کا تفاوت میں نیا زنجیرہ ہوکے سنہ ۱۲۰۵ مکھے واپلو  
 مہنا کے اونیس ۱۹ تاریخ سے لغایت مہنا مذکور کا بائیس ۲۲  
 تاریخ تک ناگانی آگھہ اوتھایا ہی اسی واسطے غلام نے اسبات  
 اپنا اوپر واجب جانکر کے حضور میں اطلاع کرتا ہوں اسمیں  
 خاوند مالک ہیں \*  
 ترجمہ کیا گوکل چندر داس بندوا مکرر نے ملک ہوئیں  
 مکرر کے ساتھ

It was proposed and carried unanimously, that the Secretary be requested to draw up for the approval of the Society, a representation to Government, setting forth the great scientific and other advantages which might be derived, were a qualified person deputed to examine and report upon the singular and highly interesting phenomena adverted to in Capt. Williams' communication; inasmuch as some account of the Volcano would be most eagerly looked for by the scientific world at home, and its proximity to us would render neglect on the part of the Society most inexcusable, and indeed disgraceful.

The Curator Museum Economic Geology and of the Geological and Mineralogical Department, stated, that ill health for the last month had prevented his drawing up his report; but he begged to read part of it, being a report on a reference from Government relative to a newly discovered Sulphur bed, at Kurachee in Scinde, as follows :—

No. 32 of 1843.

*From Captain J. PREEDY, Collector and Magistrate, Kurrachee, to Captain C. J. BROWN, Commissioner in Scinde, Hyderabad.*

SIR,—I have the honor to report for your information, that I have discovered an apparently extensive bed or mine of Sulphur in the vicinity of Ghizree Bundur. My

\* A certain Mughee month.



attention was first drawn to the spot by the native agent, Nao Mull, who pointed out to me on the surface of the ground a considerable quantity of sulphureous matter, which on fire being applied, immediately ignited. I have since had the upper surface of the earth removed in one or two places, and have by this day's post transmitted a small specimen of the Sulphur found within about a foot of the surface. As the mine is within two hundred yards of the Ghizree Creek, the Sulphur can be transported by water at a very little expence, and should it prove as productive as I have reason to expect, it will be a most valuable discovery. A great quantity of Nitre is apparent on the surface of the ground near the Sulphur mine, and this also might be turned to account.

I have, &c.

*Kurrachee Collector's Office,*  
21st June, 1843.

(Signed) J. PREEDY, Capt.  
*Collr. and Magt. Kurrachee.*

(True Copy,)

(Signed) C. J. BROWN,  
*Commissioner in Scinde.*

TO H. TORRENS, Esq., *Secretary, Asiatic Society.*

SIR,—In reply to a reference to the Museum of Economic Geology from Mr. Secretary Thomson, accompanying a small specimen of Sulphur sent from Kurachee, by Captain J. Preedy, I have the honor to Report as follows:—

1. The specimen in question was unfortunately so very minute in quantity, that nothing but approximate notions of the real value of the mineral can be formed. The whole weight did not much exceed 20 grains, of which 10 grains were taken for experiment.

2. Heated in a porcelain capsule, the 10 grains left a residuum of 4 of a fine dark coloured carbonaceous-looking ash.

3. It was not worth while to examine this small residuum, since if it contains any thing of value, which is but barely probable, we shall better be able to ascertain it when we obtain larger supplies of the mineral.

4. Approximately, then we may say, that the specimen contains about six-tenths, or 60 per cent. of sulphur, probably of tolerable purity, though a larger quantity will be required to decide upon this point, as also if the residuum contains any thing worth looking after. I solicit the attention of Captain Preedy, to whom I presume a copy of this Report will be sent, to the following remarks and suggestions.

5. I assume from his account that there is plenty of it, and thus do not advert to the *quantity* of the mineral.

A. The question as to the value of sulphur, depends mainly on its purity. The common sulphurs, manufactured or produced from copper or iron pyrites, are all contaminated by impurities, such as arsenic, selenium, and the like, which render them wholly useless in many branches of the arts, and the high value of the pure Sicilian sulphur, about which it will be remembered we were two years ago on the point of going to war, depends on its purity. The deposits from which these are procured are like this which I suppose ours to be, *i. e.* alluvial, and have no known and direct connection with volcanic action.

B. Your beds or layer of sulphur may be some pure and some impure. We should be glad to be furnished with at least half a pound of each sort as far as you can penetrate, with some of the earthy matrix in which it lies. Specimens of the minerals (as gypsum, &c.) found with it, and specimens of the intervening beds, if there are any such. Also of the nitrous efflorescence on the surface.

C. If you can also oblige us with accounts of the surrounding rocks or soil with specimens, it will add much to the value of the information. In short, a good account of the sulphur field or ground, with specimens, is a great desideratum.

D. You may in the mean time establish a little sulphur manufactory with only a few common earthenware pots and water spouts, as follows:—\*

Prepare a common water jar by coating it over outside with a little wet mud, to which a small quantity of lime and cow-dung has been added.

Set this jar sloping in an earthen furnace, with two earthen supports for it, the side to lean on the front wall and the mouth to be outside, the fire to be put in at the back. Two inches of space at most, should be left to allow the fire to play a little round the belly of the jar, but remember that no great heat is required; all that is wanted is to distil over the sulphur at a gentle heat; a strong heat will both burn it to waste, and by making it grey, lower its price. If your heat is well managed, you will get pure, bright, sulphur-yellow produce. Fill it with the mineral broken to lumps not exceeding the size of a walnut.

E. Over the top of the jar, put the head as shewn in the sketch which is only another earthen pot with an earthenware water spout fixed into it, the end of which is also fixed into a smaller jar in the bottom of which is a bole of about one inch in diameter. The spout should be supported by a forked stick.

F. The jar is placed (supported by a bamboo frame,) over a tub of water; the whole of the joints of the apparatus are to be kept tight by plastering mud and cow-dung, and winding a few strips of coarse cloth or gunny smeared with it about them.

G. The whole arrangement is, it will be seen, nearly that of the native distillers; but the difference when at work is, that the head and pipe are allowed to remain warm, the object being to sublime over the sulphur in vapour from the jar and condense it, when it flows in a melted state through the hole at the bottom: as very little heat is required, the fire place need not be more than eight inches below the belly of the jar.

H. In the water a square wooden mould, of say six or eight inches cube, with sides *tied together* may be placed. As the melted sulphur flows in, it will fill this and probably adhere, so as to form a cubic block which is a highly favorable shape for stowage. It should be remarked, that the roll-shaped sulphur is that of the common impure sulphurs, and this, if ours is pure, would spoil its sale (say at home?) by giving it a bad look. If a mark of any kind be left *in relief* on the bottom of the mould-box, it will appear stamped on the block of sulphur. You may, if your sulphur runs freely, receive it into an iron or earthen pan with handles, and pour it at once into the mould which should be wetted.

I need not add in conclusion, that I have here described an apparatus of materials to be found all over India, and as there are potters in every town, they can in a few days make you more convenient apparatus; as for instance, a still-head with a pipe curving downwards. It is probable that the people, seeing a valuable product obtained so easily by means so quickly within their reach, will be happy to share the produce with Government, or rent the ground; but it should not be forgotten, that after chemical purity, cleanliness is of first rate importance to the value of the drug. I shall be happy to hear of the progress of the experiment, and by the way I may say, that there are even simpler means of obtaining sulphur than this which I have given; but judging from the minute sample sent, they would not give *clean* sulphur without care and management, so I do not trouble you with them.

When you have succeeded in distilling sulphur well with one jar, you may make a double apparatus, by having two on opposite sides over the same fire, and end by having five or six in a row, as in Europe.

Yours truly,

H. PIDDINGTON.

Museum, 22d August, 1843.

\* A sketch was sent with this Report, but as it only represents the common *Sooree's* apparatus, we have not thought it worth while to give a plate of it.—EDS.

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